

No. 3—*The Spider Genera Achacarana, Theridion and Sphyrotinus from Mexico, Central America and the West Indies. (Araneae, Theridiidae)*

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In two previous papers (1956, Amer. Mus. Novitates, no. 1718; 1957, Bull. Amer. Mus. Nat. Hist., vol. 112, no. 1). I revised the spiders of the genera *Achacarana*, *Theridion* and *Sphyrotinus* from North America, except Mexico. The theridiid spider fauna south of the United States is little known and relatively few species have been described. Of the 174 species known to occur in the region (32 *Achacarana*, 110 *Theridion*, 32 *Sphyrotinus*), 98 are newly described in this paper. These numbers probably represent less than half the total fauna of the region. As a result of the very incomplete knowledge, some species described in this paper are expected to fall into synonymy when males and females can be matched, or when it is found that two allopatric forms intergrade.

This paper is based mainly on the collection in the Museum of Comparative Zoology, the large Panamanian and Jamaican collection of Prof. A. M. Chickering, and the collection of the American Museum of Natural History made available to me by Dr. W. J. Gertsch. I extend my sincere thanks to Dr. Chickering and Dr. Gertsch, and also to Mr. E. Browning and Dr. G. Owen Evans of the British Museum (Natural History) for supplying me with specimens from the Cambridge collection and with specimens from St. Vincent Island, determined by Simon. Others who helped were Dr. A. F. Archer and Dr. R. V. Chamberlin. Dr. J. V. Scorza sent some specimens examined by Caporiacco from Venezuela. Mr. A. Riedel and Prof. T. Jaewski sent specimens from the Polish Academy of Sciences on loan. A grant from the National Science Foundation (G-4317) made it possible for me to draw the genitalia of several types in European museums, although time during the trip did not permit complete redescription. Research and publication were in part supported by National Institute of Health grant no. E-1944.

The species determined by N. Banks from Costa Rica and Panama were re-examined; however, little reference is made to his publications, since the majority of his specimens had been misidentified.

Several far-ranging species, particularly of the genus *Sphyrotinus*, appear to be polytypic, and show geographical variation. Drawings were made only of the extreme forms, as illustrations of all intermediates could not have been published. The genitalia of spiders vary considerably, and in our modern understanding of the nature of animal species, these differences are recognized to be within the genetic variability of the species, in accord with the evidence of large series available for many species of spiders. Of course, if work is to proceed in spite of limited material, there will be unavoidable errors on the side of "lumping" or "splitting."

In a recent paper, R. Braum (1956, Zeitschr. wissenschaftl. Zool., vol. 159, p. 255-318) describes the way in which, after mating, the male theridiid spider covers the epigynum with secretions from his mouthparts, forming the "Begattungszeichen." This epigynal plug is found also in some other families of spiders. The plug is often difficult or impossible to remove and if only few specimens are available it often is a matter of judgment whether the epigynum is covered or not. It is of interest that in one species, *Theridion galerum* (of which females both with and without plugs were available), the plug was drawn out into a cone of varying length (Fig. 84).

To determine females of these genera it is often essential to examine the internal genitalia. In some species this can be done by dropping the specimen in clove oil for a minute or two. In others the epigynum has to be lifted up at the side with a fine needle, taking care not to remove the whole epigynum. Sometimes the two techniques must be combined. The left palpi are illustrated. Unless indicated otherwise, they are in ventral view.

*Zoogeography.* Our incomplete knowledge of the species makes it very difficult to summarize distribution patterns. All three genera are probably cosmopolitan. Relatively few species of the *Theridion murarium* group are found in Central America and the West Indies, but they are widespread and especially abundant in southwestern United States and Mexico. The *T. frondicum*



group is represented by many species, most of them in Mexico, others widespread. A large heterogeneous assemblage of species has the abdomen wider than long; most are southern Mexican and Central American. The *T. moctezuma* group, one of the largest, is mainly Central American and southern Mexican in distribution and the species seem to be very localized.

The number of species of *Sphyrotinus* is greatest in Central America. While Central American *Sphyrotinus* species probably also live in litter, it is interesting that none is as heavily sclerotized as several species occurring in the United States.

It may be worth while to make a comparison of the fauna of Florida, Jamaica and Panama. Jamaica and Panama are the only areas from which large collections have been examined. The Panamanian theridiids are less well known than the Jamaican ones as the only areas collected are in the vicinity of the Canal Zone.

Florida has 6 *Achacaranca*, 17 *Theridion*, and 4 *Sphyrotinus*

Jamaica has 2 *Achacaranca*, 10 *Theridion*, and 1 *Sphyrotinus*

Panama has 14 *Achacaranca*, 42 *Theridion*, and 15 *Sphyrotinus*

Jamaica has two species of *Achacaranca*; of the two, one (*anna*) is endemic, the other (*porteri*) is found in southeastern United States and Mexico. *Sphyrotinus guanicæ* (Map 6) is found in northern Mexico and the Greater Antilles. Two species of Jamaican *Theridion* are endemic (*jamaicense*; *clemens*), the latter found just in the Blue Mountains; both are very distinct. *Theridion jamaicense* has an affinity with *antillanum*, found only in the Greater and Lesser Antilles (Map 4). Four species (*positivum*; *crispulum*; *atropunctatum*; *hispidum*, Map 3) are found from the southern United States or Mexico to northern South America; two are found in the southern United States (*myersi*; *submissum*), the latter in the Southwest, but not in Florida. One species is found in the Bahama Islands, Lesser Antilles and Central America (*dilucidum*, Map 2); however, it belongs to a northern group of *Theridion*. Except for the two endemic species Jamaican *Theridion* show strong affinities to the nearctic fauna, none with the Central American.

Panama has five Central American species of *Achacaranca* (*aper*; *schneirlai*; *zonensis*; *machaera*; *oblivia*). Of two Mexican

(*florendida*; *picadoi*) the latter may be cosmotropical. Three are known also from South America (*tacuiata*; *hirta*, Map 1; *trapezoidalis*). One is Mexican and Cuban (*mesax*). Three are West Indian (*florens*; *terex*; *maricaoensis*), the first two found also in Cuba, the last in Puerto Rico. There are seven Central American species of *Sphyrotinus*, (*chickeringi*; *reservatus*; *insignis*; *notabilis*; *bogus*; *prolatus*; *indicatus*). Six are found in Mexico and Central America (*illudens*; *delicatulus*; *maderae*; *confraternus*; *boquete*; *deprus*). Two are found in South America or Lesser Antilles (*stylifrons*; *luculentus*).

Twenty-six Panamanian species of *Theridion* are known only from Central America, two are cosmotropical (*rufipes*; *adamsoni*), six are Mexican (*adjacens*, Map 4; *niveum*; *trepidum*; *elisabethae*; *nudum*; *dotanum*), one West Indian and Lesser Antilles (*dilucidum*, Map 2); three are Mexican, West Indian and South American (*atropunctatum*; *hispidum*, Map 3; *evexum*, Map 5). One has a distribution from Mexico to South America (*greccia*). Three are South American or Lesser Antillean (*sermaculatum*; *petrum*; *minutissimum*).

To summarize: Jamaica has the poorest fauna and the species are predominantly nearctic. Panama is the richest and the spiders are predominantly endemic or possibly South American. Unfortunately little is known of South American species at the present time.

### ACHAEARANEA Strand

Like *Theridion*, *Achaearana* lacks a colulus. The abdomen is usually higher than long, sometimes modified, and often having a typical pattern of stripes quite distinct from *Theridion*. The palpus of *Achaearana* is simpler than that of *Theridion*; it always lacks a radix and the median apophysis, if present, is joined to the embolus.

The following species have been misplaced: *Achaea luculenta* Bryant, 1940 = *Chryssa albomaculata* O. P. Cambridge. *A. globosa* (Hentz) was erroneously reported from Cuba by Bryant (1940, Bull. Comp. Zool., vol. 86, p. 319). The specimen had been misidentified. The following well illustrated *Achaearana* (described as *Theridion*) are found in this region but were not examined:

- A. aztecum* (Chamberlin and Ivie), 1936, Bull. Univ. Utah, biol. ser., vol. 27, no. 5, p. 34, figs. 97-98, ♂, (♂ type from near Chilapa, Guerrero, in the American Museum of Natural History).
- A. boqueronicum* (Kraus), 1955, Abhandl. Senckenbergischen Naturf. Gesell., no. 493, p. 17, figs. 37-39, ♀ (♀ type from Dept. La Libertad, El Salvador in the Senckenberg Museum).
- A. salvadorensis* (Kraus), 1955, *op. cit.*, p. 17, figs. 34-36, ♀ (♀ type from San Salvador, El Salvador in the Senckenberg Museum).

Species of *Achaearana* found in this region and also occurring north of Mexico, illustrated in a previous paper (1955, Amer. Mus. Novitates, no. 1718), are:

#### ACHAEARANEA SCHULLEI (Gertsch and Mulaik)

*Achaearana schullei*, Levi, 1955, p. 17, figs. 32-38, ♀, ♂.

*Distribution.* Florida to California, south to Guerrero.

*Additional records.* *Puebla:* Tehuacán. *Morcos:* Cocoyoc; Cuernavaca. *Querrero:* 11 mi. W. of Chilpancingo.

#### ACHAEARANEA INSULSA (Gertsch and Mulaik)

*Achaearana insulsa*, Levi, 1955, p. 19, figs. 41-45, ♀, ♂.

*Distribution.* Texas, Tamaulipas, San Luis Potosí.

#### ACHAEARANEA PORTERI (Banks)

*Achaearana porteri*, Levi, 1955, p. 30, figs. 71-75, 80-82, ♀, ♂.

*Theridion portoricense* Petrunkevitch, 1930, Trans. Connecticut Acad. Sci., vol. 30, p. 197, figs. 42, 43, ♀ (♀ type from cave at Aguas Buenas, Puerto Rico, probably lost). NEW SYNONYMY.

*Distribution.* Southeastern United States, south to Panama, Bahama Isl., Puerto Rico, Jamaica, often in caves.

*Additional records.* *Tlaxcala:* Tlaxcala. *Puebla:* Tehuacán. *Michoacan:* Zamora. *Guerrero:* 7 mi. S. of Chilpancingo. *Costa Rica:* La Verbena (Tristan). *Jamaica:* N. of Flat Bridge, Río Cobre Gorge, St. Catherine (A. F. Archer); Guanoboa Vale, St. Catherine Par. (A. M. Chickering).

#### ACHAEARANEA TEPIDARIORUM (C. L. Koch)

*Achaearana tepidarium*, Levi, 1955, p. 32, figs. 69-70, 83-84, ♀, ♂.

*Distribution.* Cosmopolitan. Southern Canada to South Amer-

Indies, although a specimen marked "W. India," 1852, Keyserling is in the Museum of Comparative Zoology. No records from southern Mexico and Central America.

ACHAEARANEA ANNA, new species

Figures 13-15

*Type.* Male holotype from St. Ann Parish, Jamaica, British iica. Common in Bermuda, but apparently absent in the West West Indies, June 22, 1954, in the Museum of Comparative Zoology.

*Description.* Female: Carapace, sternum, legs yellow-white. Abdomen white. Eyes subequal in size, or anterior medians slightly larger. Anterior median eyes one diameter apart, almost touching laterals. Posterior median eyes one diameter apart, two-thirds from laterals. Abdomen very high. Total length 1.3 mm. Carapace 0.65 mm. long, 0.49 mm. wide. First femur, 0.88 mm.; patella and tibia, 0.76 mm.; metatarsus, 0.52 mm.; tarsus, 0.36 mm. Second patella and tibia, 0.55 mm.; third, 0.42 mm.; fourth, 0.56 mm.

Male: Coloration like female except for abdomen which has a white transverse ring around highest portion like *A. conjuncta*. Total length 1.4 mm. Carapace 0.65 mm. long, 0.52 mm. wide. First femur, 1.12 mm.; patella and tibia, 1.04 mm.; metatarsus, 0.82 mm.; tarsus, 0.44 mm. Second patella and tibia 0.75 mm.; third, 0.45 mm.; fourth, 0.61 mm.

*Diagnosis.* The shape of the palpal cymbium (Fig. 13) and the posterior light area in the swollen part of the epigynum (Fig. 15) distinguish this species from *A. conjuncta*.

*Records.* Jamaica. E. of May Pen, St. Catherine Par., Nov. 1957, ♀ (A. M. Chickering); Liguanea, St. Andrew Par., Nov. 1957, ♀ (A. M. Chickering).

ACHAEARANEA TURQUINO, new species

Figures 1-3

*Type.* Female holotype from Pico Turquino, 1500 ft., Cuba, June 25, 1936 (P. J. Darlington), in the Museum of Comparative Zoology.

*Description.* Carapace, sternum brown. Legs white with brown rings. Abdomen spotted black, brown, reddish; a small white

spot on each side of dorsum near highest point. Posterior portion of abdomen white. Eyes subequal in size. Anterior median eyes one diameter apart, one quarter from laterals. Posterior median eyes one diameter apart, less than one from laterals. Abdomen higher than long, like *Achaearana porteri*, having a tubercle. Total length 2.9 mm. Carapace 0.98 mm. long, 0.85 mm. wide. First femur, 1.30 mm.; patella and tibia, 1.25 mm.; metatarsus, 0.99 mm.; tarsus, 0.50 mm. Second patella and tibia, 0.82 mm.; third, 0.68 mm.; fourth, 1.00 mm.

*Diagnosis.* The small opening on a cone-shaped elevation of the epigynum (Figs. 2, 3) distinguishes this species from other *Achaearana*.

*Records.* Cuba: Sierra de Casas, Isla de Piños, Aug. 17, 1955 (A. F. Archer); Pan de Palenque, Matanzas, Aug. 11, 1955 (A. F. Archer).

#### ACHAEARANEA HERMOSILLO, new species

Figures 4-8

*Type.* Male holotype from 66 miles north of Hermosillo, Sonora, Mexico, June 22, 1939 (A. M. and L. I. Davis), in the American Museum of Natural History.

*Description.* Female: Carapace, sternum dark dusky brown, sometimes reddish around eyes. Legs reddish brown. Abdomen black with pairs of white spots on the posterior side (Fig. 8). Eyes subequal in size; posterior medians separated by one diameter, by one-third from laterals. Height of clypeus equaling one and one-half diameters of anterior median eyes. The epigynum (Fig. 5) is flatter than that of *A. globosa* (Hentz). Total length 1.6-1.9 mm. The allotype measured total length: 1.9 mm. Carapace 0.74 mm. long; 0.65 mm. wide. First femur, 1.30 mm.; patella and tibia, 1.09 mm.; metatarsus, 0.83 mm.; tarsus, 0.48 mm. Second patella and tibia, 0.80 mm.; third, 0.56 mm.; fourth, 0.82 mm.

Male: Coloration and structure like that of female. The anterior median eyes are slightly larger than the others. The abdomen is almost as high as long with the dorsolateral extensions less distinct. Palpus illustrated by Figures 6, 7. Total length 1.9 mm. Carapace 0.94 mm. long, 0.73 mm. wide. First femur, 1.62 mm.; patella and tibia, 1.57 mm.; metatarsus, 1.13 mm.;

tarsus, 0.57 mm. Second patella and tibia, 1.04 mm.; third, 0.68 mm.; fourth, 0.90 mm.

*Diagnosis.* The abdominal humps and the genitalia distinguish this species from *A. globosa* (Hentz).

*Record.* *Sonora*: 66 mi. N. of Hermosillo, ♀ allotype, 2 ♀ paratypes, June 22, 1939 (A. M. and L. I. Davis).

#### ACHAEARANEA APEX, new species

##### Figures 9-12

*Type.* Male holotype from Summit, Canal Zone, July 24-29, 1950 (A. M. Chickering) in the Museum of Comparative Zoology.

*Description.* Female: Carapace black. Sternum white, with a rusty patch near posterior end. Legs white with wide dark bands on middle and distal ends of segments; patellae black. Dorsum of abdomen black with white spots; venter black behind genital groove, lighter in the middle. From sides of white epigastric plates are white bands going dorsal (Fig. 11). Anterior median eyes one-third to one-half a diameter apart, one-fourth from laterals. Posterior median eyes three-quarters diameter apart, one-third from laterals. Epigynum (Fig. 10) with opening anterior to a swollen area. Total length 1.6-1.8 mm. One specimen total length: 1.8 mm. Carapace 0.68 mm. long, 0.60 mm. wide. First femur, 0.78 mm.; patella and tibia, 0.78 mm.; metatarsus, 0.52 mm.; tarsus, 0.32 mm. Second patella and tibia, 0.61 mm.; third, 0.45 mm.; fourth, 0.74 mm.

Male: Carapace dusky yellow; sternum, legs yellow. Abdomen grayish white with a more or less distinct white dorsal cross band across middle; anterior of cross band are about four white spots; posterior to it some fine black pigment spots and white spots. Palpus illustrated by Figure 12. Total length, 1.3 mm. Carapace, 0.58 mm. long, 0.52 mm. wide; first femur, 0.89 mm.; patella and tibia, 0.78 mm.; metatarsus, 0.61 mm.; tarsus, 0.39 mm. Second patella and tibia, 0.62 mm.; third, 0.47 mm.; fourth, 0.65 mm.

*Diagnosis.* The structure of the eymbium of the male palp (Fig. 12), as well as the female genitalia (Figs. 9, 10) and epigynum differentiate this species from others.

*Records.* *Canal Zone*: Summit, ♀ allotype, 4 ♀, 3 ♂ paratypes, Barro Colorado Island.



## ACHAEARANEA FLORENS (O. P. Cambridge)

Figures 16, 18-19

*Theridion florens* O. P. Cambridge, 1886, *Biologia Centrali Americana*, Araneidea, vol. 1, p. 205, pl. 24, fig. 12, ♀ (♀ type from Tabasco, Mexico, in the British Museum, Natural History).

*Achaea mendax* O. P. Cambridge, 1899, *op. cit.*, p. 294, pl. 39, fig. 7, ♂. F. P. Cambridge, 1902, *ibid.*, vol. 2, p. 401, pl. 37, fig. 30, ♂. (♂ type from Coban, Guatemala, in the British Museum, Natural History).

*Scatoda florens*, F. P. Cambridge, 1902, *op. cit.*, p. 382, pl. 36, figure 5, ♀.

*Achaearana florens*, Levi, 1955, *Amer. Mus. Novitates*, no. 1718, p. 15 (in part), figs. 26-29, ♀, ♂, (not figs. 30-31).

*Diagnosis.* This species is very close to *A. florendida* with which I confused it in a previous paper (Levi, 1955). The genitalia of both species have been illustrated at the same magnification. The cymbium of the palpus of *A. florens* (Fig. 16) is more slender near its tip than that of *A. florendida* (Fig. 17). The epigyna of the two species are similar (Figs. 19, 21); however, the total length of females of *A. florens* is 2.6-4.7 mm., that of *A. florendida* is only 1.8-2.6 mm. Most of females can therefore be readily separated by size. (The males are of more equal size, those of *A. florens* being between 1.8-2.2 mm. total length.)

*Natural History.* The eggsac of this species has been found in a rolled up leaf.

*Records.* *Distrito Federal:* Mexico. *Costa Rica:* Tejar de Cartago (Biolley and Tristan); Fortuna (Tristan). *Panama:* Boquete; El Volcán (A. M. Chickering). *Canal Zone:* Barro Colorado Isl. (many records). *Cuba:* Soledad, Vileher's Hill (L. S. Worley); 7 mi. S. of Hidalgo.

## ACHAEARANEA FLORENDIDA, new species

Figures 17, 20-21

*Achaearana florens*, Levi, 1955, *Amer. Mus. Novitates*, no. 1718, p. 15 (in part), figs. 30-31, ♂ (not figs. 26-29).

*Type.* Male holotype, from Barro Colorado Island, Canal Zone, Aug. 1-6, 1939 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Female: carapace, sternum, legs, yellow-white; legs slightly dusky at ends of segments. Abdomen with pattern

as in *A. florens*, but lighter. Eyes subequal in size, three-quarters diameter apart, one-quarter diameter from laterals. Posterior eyes separated by two-thirds diameter. Total length 1.8-2.4 mm. Allotype total length, 2.0 mm. Carapace, 0.85 mm. long, 0.71 mm. wide. First femur, 1.43 mm.; patella and tibia, 1.30 mm.; metatarsus, 1.17 mm.; tarsus, 0.55 mm. Second patella and tibia, 0.91 mm.; third, 0.65 mm.; fourth, 0.96 mm.

Male: Lighter colored and yellower than female. Total length, 1.4-1.8 mm. Holotype total length, 1.4 mm. Carapace, 0.85 mm. long; 0.66 mm. wide. First femur, 1.53 mm.; patella and tibia, 1.36 mm.; metatarsus, 1.22 mm.; tarsus, 0.53 mm. Second patella and tibia, 0.99 mm.; third, 0.63 mm.; fourth, 0.85 mm.

*Diagnosis.* The cymbium of the male palp has a stouter tip (Fig. 17) than *A. florens*. The females are smaller in size than those of *A. florens*. The epigyna are similar.

*Records.* *Texas*: (Levi, 1955). *Tamaulipas*: 27 mi. N. of Villa Juárez. *Costa Rica*: San José. *Panama*: El Valle; Boquete. *Canal Zone*: Barro Colorado Isl, ♀ allotype, ♀, ♂ paratypes (very common); Summit, Chilibre; Chiva Rd. nr. Pedro Miguel.

#### ACHAEARANEA SERAX, new species

Figures 22-23

*Type.* Female holotype from Finca Cuauhtémoc near Cacahuatán, Chiapas, August 3-13, 1950 (C. and M. Goodnight), in the American Museum of Natural History.

*Description.* Female: Coloration as in *A. florens*. Eyes subequal in size; posterior medians separated by three-fourths diameter from each other, by two-thirds from laterals. Total length 2.5 mm. Carapace, 0.94 mm. long, 0.78 mm. wide. First femur, 1.56 mm.; patella and tibia, 1.45 mm.; metatarsus, 1.29 mm.; tarsus, 0.59 mm. Second patella and tibia, 0.95 mm.; third, 0.66 mm.; fourth, 1.10 mm.

*Diagnosis.* This species differs from *A. florens* and *A. florendida* by the much larger openings of the epigynum (Fig. 23).

*Record.* *Chiapas*: Finca Cuauhtémoc nr. Cacahuatán, ♀ paratype (C. and M. Goodnight); Tenejapa (C. Goodnight).

## ACHAEARANEA NAYARITENSIS, new species

Figures 67-69

*Type.* Female type from La Mesa de Nayarit, Nayarit, July 16-21, 1955 (B. Malkin), in the American Museum of Natural History.

*Description.* Carapace whitish, cephalic portion with a black band covering eyes in front and narrowing towards thoracic depression; margin with a black line. Sternum dark brown. Legs with dark brown bands, as wide as intermediate white areas. Abdomen spotted brown, black and white with a typical pattern. Anterior median eyes one diameter apart, almost touching laterals. Posterior median eyes their radius apart, two-thirds diameter from laterals. Total length 2.0 mm. Carapace 0.95 mm. long, 0.79 mm. wide. First femur 1.50 mm.; patella and tibia, 1.36 mm.; metatarsus, 1.14 mm., tarsus, 0.52 mm. Second patella and tibia, 1.01 mm.; third, 0.78 mm.; fourth, 1.20 mm.

*Diagnosis.* A lighter bulge in the center of the epigynum (Figs. 68, 69) separates this species from others.

## ACHAEARANEA SCHNEIRLAI, new species

Figure 26

*Type.* Male holotype from Barro Colorado Island, Panama, April 30, 1946 (T. C. Schneirla), in the American Museum of Natural History.

*Description.* Male: Carapace red-brown. Sternum reddish brown, dusky around margin. Coxae very light; legs with brown bands, more distinct on distal segments. Dorsum of abdomen with black and white spots, anterior mostly dark, venter black. Anterior median eyes slightly larger than others; posterior median eyes separated by one diameter, by two-thirds from laterals. Height of clypeus equals one and one-half diameters of anterior median eyes. Abdomen without tubercle, quite hairy. Total length 1.8 mm. Carapace, 0.88 mm. long, 0.78 mm. wide. First femur, 1.36 mm.; patella and tibia, 1.30 mm.; metatarsus, 0.91 mm.; tarsus, 0.49 mm. Second patella and tibia, 0.91 mm.; third, 0.66 mm.; fourth, 0.96 mm. This species might be the male of *A. schraderorum*.

*Diagnosis.* The long thread-like embolus of the palpus (Fig. 26) distinguishes this species from *A. aztecum*.

## ACHAEARANEAE SCHRADERORUM, new species

Figures 24-25

*Type.* Female holotype from Siquirres, Costa Rica, May 20-23, 1944 (Dr. and Mrs. F. Schrader), in the American Museum of Natural History.

*Description.* Female: Carapace dark brown. Sternum red-brown, coxae dusky. Legs white with red-brown bands. Abdomen gray with several white lines and spots. Eyes subequal in size; posterior median eyes separated by two-thirds their diameter and by the same distance from laterals. Height of clypeus equals two diameters of anterior median eyes. No tubercle on the abdomen. The epigynum (Fig. 25) is a large depression and has a slight notch at the posterior border. Total length 1.9 mm. Carapace, 0.82 mm. long; 0.70 mm. wide. First femur, 1.20 mm.; patella and tibia, 1.09 mm.; metatarsus, 0.78 mm.; tarsus, 0.44 mm. Second patella and tibia, 0.75 mm.; third, 0.55 mm.; fourth, 0.82 mm.

*Diagnosis.* The epigynum (Fig. 25) distinguishes this species.

## ACHAEARANEAE TRINIDENSIS, new species

Figures 29-31

*Type.* Male type from Simla, near Arima, Trinidad, Dec. 28, 1954 (A. M. Nadler), in the American Museum of Natural History.

*Description.* Carapace, sternum, legs light yellow; sternum dusky behind. Abdomen of female with a white cross band anterior of dorsum and a central white stripe; venter with a dusky mark anterior to spinnerets. Male darker, abdomen with patches of black pigment. Anterior median eyes much larger than others, one and a half diameters of posterior medians in female, one and three-quarters in male; three-quarters diameter apart. Posterior eyes two-thirds diameter apart in female. Posterior medians of male their radius apart, one diameter from laterals. Total length of female 1.4 mm. Carapace 0.64 mm. long, 0.59 mm. wide. First femur, 0.93 mm.; patella and tibia, 0.91 mm.; metatarsus, 0.65 mm.; tarsus, 0.39 mm. Second patella and tibia, 0.66 mm.; third, 0.49 mm.; fourth, 0.73 mm. Total length of male 1.7 mm. Carapace 0.88 mm. long, 0.75 mm. wide. Second patella and tibia, 1.16 mm.; third, 0.70 mm.; fourth, 0.97 mm.

It is possible that the male and female belong to different species. The female may be a *Theridion*.

*Diagnosis.* The genitalia (Figs. 29-31) distinguish this species.

*Records.* *Trinidad:* Simla, nr. Arima, ♀ paratypes (A. M. Nadler).

ACHAEARANEA ZONENSIS, new species  
Figures 32-34

*Type.* Male holotype, from Experimental Gardens, Canal Zone, July 10-14, 1945 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Female: Carapace dusky yellow. Sternum yellow with sides dusky. Legs white with yellow-brown or dusky patellae and rings on ends of segments. Dorsum of abdomen black, or speckled gray and white. Venter anterior to pedicel with a white crossline; from middle of crossline two white streaks radiate anterior and to the sides. Black or gray between genital groove and spinnerets with a white spot on each side. Anterior median eyes one diameter apart, almost touching laterals. Posterior median eyes less than one diameter apart, two-thirds diameter from laterals. Abdomen without tubercle. Epigynum with a shallow depression and with a narrow sclerotized posterior lip. Openings side by side in depression, often in a darker area (Fig. 33). Total length 1.8-2.1 mm. Female holotype, total length 2.0 mm. Carapace, 0.69 mm. long, 0.57 mm. wide. First femur, 1.10 mm.; patella and tibia, 1.07 mm.; metatarsus, 0.80 mm.; tarsus, 0.45 mm. Second patella and tibia, 0.72 mm.; third, 0.52 mm.; fourth, 0.80 mm.

Male: Carapace white with a dusky median line, as wide as the posterior median eyes in front, narrower behind. Legs white, with indistinct light brown bands. Abdomen white behind and dusky in front, venter black, palpus (Fig. 34), small and of variable width. Total length 1.2 mm. Carapace 0.57 mm. long, 0.55 mm. wide. First femur, 1.04 mm.; patella and tibia, 0.97 mm.; metatarsus, 0.71 mm.; tarsus, 0.39 mm. Second patella and tibia, 0.73 mm.; third, 0.45 mm.; fourth, 0.66 mm.

*Diagnosis.* The pair of white ventral spots and the genitalia (Figs. 32-34) distinguish this species.

*Records. Canal Zone:* Experimental Gardens, Barro Colorado Island, ♀ allotype, paratypes (many records); Summit; France Field; Forest Reserve. *Panama:* Porto Bello; Arraiján.

ACHAEARANEA HIRTA (Taczanowski), new combination  
 Figures 35-38, Map 1

- Argyrodes hirtus* Taczanowski, 1872, Horae Soc. ent. Rossicae, vol. 9, p. 119. (♀ syntypes from Cayenne, French Guiana, in the Polish Academy of Sciences, Warsaw).
- Achaea hirta*, Keyserling, 1884, Die Spinnen Amerikas, vol. 2, no. 1, p. 104, pl. 5, fig. 67, ♀. Roewer, 1942, Katalog der Araneae, vol. 1, p. 445. Bonnet, 1955, Bibliographia Araneorum, vol. 2, p. 144.
- Achaea undata* Keyserling, 1884, *op. cit.*, vol. 2, no. 1, p. 105, pl. 5, fig. 68. ♀, ♂ (♀, ♂ syntypes from the province Amazonas, Brazil, in the Hope Department of Entomology, Oxford). NEW SYNONYMY.
- Achaea guadalupensis* Keyserling, 1884, *op. cit.*, vol. 2, no. 1, p. 110, pl. 5, fig. 72, ♀ (♀ type from Guadelupa, Peru, in the Polish Academy of Sciences, Warsaw). NEW SYNONYMY.
- Achaea ignota* Keyserling, 1884, *op. cit.*, vol. 2, no. 1, p. 112, pl. 5, fig. 73, ♀. (♀ type from Minas Geraes, Brazil, in the Hope Department of Entomology, Oxford). NEW SYNONYMY.
- Theridion bentificum* Keyserling, 1891, *op. cit.*, vol. 3, p. 184, pl. 6, fig. 129, ♂ (♂ type from Rio Grande do Sul, Brazil, in the British Museum, Natural History). Roewer, 1942, *op. cit.*, vol. 1, p. 490. NEW SYNONYMY.
- Theridion ignotum*, Simon, 1894, Histoire Naturelle des Araignées, vol. 1, p. 535, Roewer, 1942, *op. cit.*, vol. 1, p. 494. NEW SYNONYMY.
- Theridion guadelupense*, Simon, 1894, *op. cit.*, vol. 1, p. 535. NEW SYNONYMY.
- Theridion undatum*, Simon, 1894, *op. cit.*, vol. 1, p. 535. Roewer, 1942, *op. cit.*, vol. 1, p. 496. NEW SYNONYMY.
- Chryso maronica* Caporiaeco, 1954, Comm. Pontifica Acad. Scient., vol. 16, p. 74, fig. 11, ♀. (♀ type from S. Jean du Maroni, French Guiana, in the Museum National d'Histoire Naturelle, Paris). NEW SYNONYMY.

*Description.* Female: Carapace dark brown. Sternum reddish brown, in center yellowish white. Coxae yellow-white. Legs yellow-white with patellae, distal portions of femora, and tibiae red-brown. Abdomen (Fig. 38) marked with black, white and red-brown. Eyes subequal in size; posterior medians separated by their diameter, same distance from laterals. Height of clypeus equals about two diameters of anterior median eyes. Abdomen with a large tubercle. The epigynum is illustrated by Figure



36. Total length of females 1.9-2.9 mm. One female from Panama, total length, 2.6 mm. Carapace, 0.98 mm. long, 0.77 mm. wide. First femur, 1.82 mm.; patella and tibia, 1.80 mm.; metatarsus, 1.80 mm.; tarsus, 0.66 mm. Second patella and tibia, 1.17 mm.; third, 0.78 mm.; fourth, 1.24 mm.



Map 1. Distribution of *Achaearanea hirta* (Taczanowski).

Male: Abdomen higher than long, tubercle lacking. Palpus illustrated by Figure 37. Total length 1.6-2.0 mm. A male from Panama measured 1.8 mm. total length. Carapace, 1.00 mm. long, 0.78 mm. wide. First femur, 2.18 mm.; patella and tibia, 2.20 mm.; metatarsus, 2.10 mm.; tarsus, 0.65 mm. Second patella and tibia, 1.18 mm.; third, 0.75 mm.; fourth, 1.15 mm.

The types of Taczanowski and Keyserling were examined.

*Variation.* The ducts of the female genitalia are variable and may be at different angles. The epigynum may be opaque or transparent showing the ducts.

*Records.* *Panama:* El Valle: Arraiján; *Canal Zone:* Fort Randolph; Barro Colorado Island; Summit; Experimental Gardens; Fort Sherman; Pedro Miguel. *Trinidad:* Gasparee; Balandra Bay. *Venezuela:* Maracay. *British Guiana:* Kartabo, Bartiea District. *Peru:* Tingo María, 670 m. *Brazil:* Rio Grande do Norte: Ceará Mirim. Minas Geraes: Minas de Serrinha Diamantina. Est. Rio de Janeiro; Cidade Rio de Janeiro; Teresópolis. *Paraguay:* Taguararapa, Alto-Panama.

ACHAEARANEA TAENIATA (Keyserling), new combination  
Figures 39-41

*Theridion taeniatum* Keyserling, 1884, Die Spinnen Amerikas, vol. 2, pt. 1, p. 12, pl. 1, fig. 2, ♀, ♂. (♀, ♂ syntypes from Caracas, Venezuela, in the Institut Royal des Sciences Naturelles, Brussels.) Roewer, 1942, Katalog der Araneae, vol. 1, p. 499. Not *Steatoda taeniata*, F. P. Cambridge, 1902, Biologia Centrali Americana, Araneidea, vol. 2, p. 382, pl. 36, figs. 3, 4, ♀.

*Description.* Female: Carapace dusky brown. Sternum reddish brown. Legs yellow with patellae and distal ends of segments reddish. Abdomen nearly black with typical pattern of patches and lines; venter with area between spinnerets and genital furrow black with a white spot on each side. Carapace long with a thoracic depression. Anterior median eyes two-thirds diameter apart, one-quarter from laterals. Posterior eyes less than one diameter apart. Abdomen without tubercle. Epigynum (Fig. 40) two dark spots with an opening in the center; spots may be closer to margin or so large as to almost touch. Total length 3.2-5.2 mm. Total length of a female 4.5 mm. Carapace, 1.70 mm. long; 1.42 mm. wide. First femur, 2.65 mm.; patella and tibia, 2.89 mm.; metatarsus, 2.46 mm.; tarsus, 0.94 mm. Second patella and tibia, 1.75 mm.; third, 1.36 mm.; fourth, 2.10 mm.

Male: Lighter in coloration than female, dorsum of abdomen almost white. Palpus illustrated by Figure 41; conductor a transparent piece of variable shape on a stalk. Total length, 2.3-2.9 mm. Total length of a male, 2.4 mm. Carapace, 1.28 mm. long; 0.98 mm. wide. First femur, 2.34 mm.; patella and tibia, 2.41 mm.; metatarsus, 2.18 mm.; tarsus, 0.78 mm. Second patella and tibia, 1.53 mm.; third, 1.04 mm.; fourth, 1.33 mm.

*Comments.* Syntypes of this species have been examined.

*Natural History.* The eggsac is hung in a rolled up leaf.

*Records.* *Guatemala:* Quezaltenango (C. and M. Goodnight). *Costa Rica:* Escazú (Tristan). *Panama:* Boquete. *Canal Zone:* Barro Colorado Island (N. Banks; A. M. Chickering); Summit; Forest Reserve. *Lesser Antilles:* Trinidad: Port of Spain (R. Thaxter).

ACHAEARANEA PURA (O. P. Cambridge), new combination  
 Figures 42-44

*Theridion purum* O. P. Cambridge, 1894, *Biologia Centrali Americana*, Araneida, vol. 1, p. 131, pl. 17, fig. 6, ♀. (♀ type from Omilteme, in the British Museum, Natural History.) Roewer, 1942, *Katalog der Araneae*, vol. 1, p. 497.

*Steatoda pura*, F. P. Cambridge, 1902, *Biologia Centrali Americana*, Araneida, vol. 2, p. 383, pl. 36, fig. 10, ♀.

*Natural History*. "Found in a hollow at the root of a tree in a shady ravine, in a small den like an inverted cone, formed of bits of dried leaves etc." (O. P. Cambridge, 1894).

*Records*. *Hidalgo*: 10-20 mi. S. of Jacala. *Guerrero*: Omiltemi, 8000 ft., ♀ holotype. *Veracruz*: 10 mi. W.; 15 mi. west of Jalapa, ♀, ♂. *Morelos*: Cuernavaca, Sept. 1941, 1700 m. (H. Wagner), ♀.

ACHAEARANEA MARICAOENSIS (Bryant), new combination  
 Figures 45-50

*Theridion maricaoensis* Bryant, 1942, *Jour. Agr. Univ. Puerto Rico*, vol. 26, p. 2, figs. 2-4, ♂. (♂ type from Maricao Forest, 2500 ft., Puerto Rico, in the Museum of Comparative Zoology.)

*Description*. Female: Carapace black; sternum red-brown. Legs darker on distal ends. Abdomen with a black patch on each side, reddish brown and white (Fig. 45), venter gray with two small white spots side by side. Anterior median eyes one diameter apart, one-quarter from laterals. Posterior median eyes one diameter apart, two-thirds from laterals. Epigynum (Fig. 48) a depression with a posterior lip, often sufficiently transparent to show the diagnostic ducts (Fig. 46). Total length 2.2-3.6 mm. Measurements of a female from Panama: Total length, 2.5 mm. Carapace 1.17 mm. long, 0.85 mm. wide. First femur, 1.72 mm.; patella and tibia, 1.62 mm.; metatarsus, 1.30 mm.; tarsus, 0.65 mm. Second patella and tibia, 1.04 mm.; third, 0.78 mm.; fourth, 1.23 mm.

Male: Lighter in color than female. Bryant (1942) reports that the types have the anterior median eyes larger than the others. Palpus illustrated by Figures 49 and 50. Conductor of Central American specimens of same shape as that of type, but turned over; a recently molted specimen has conductor not quite

folded over; total length 1.4-1.7 mm. Measurements of a male from Panama: total length: 1.7 mm. Carapace, 0.75 mm. long; 0.62 mm. wide. First femur, 1.10 mm.; patella and tibia, 1.26 mm.; metatarsus, 0.94 mm.; tarsus, 0.47 mm. Second patella and tibia, 0.81 mm.; third, 0.60 mm.; fourth, 0.81 mm.

*Records.* Panama: Boquete; Porto Bello. Canal Zone: Barro Colorado Island (N. Banks; A. M. Chickering); Madden Dam.

#### ACHAEARANEA TEREX, new species

##### Figure 52

*Type.* Male holotype from Banes, Oriente, Cuba, Aug. 1-3, 1955 (A. F. Archer), in the American Museum of Natural History.

*Description.* Carapace, sternum, femora yellow-white; other leg segments dusky. Abdomen white with a black spot on venter. Anterior median eyes almost twice the size of others, their diameter apart, almost touching laterals. Posterior medians one and one-third diameters apart, two-thirds diameters from laterals. Total length 1.3 mm. Carapace 0.60 mm. long, 0.52 mm. wide. First femur, 0.59 mm.; patella and tibia, 0.65 mm.; metatarsus, 0.47 mm.; tarsus, 0.36 mm. Second patella and tibia, 0.50 mm.; third, 0.35 mm.; fourth, 0.52 mm.

*Diagnosis.* The black ventral abdominal spot, the short legs and the structure of the palpus (Fig. 52) differentiate this species from *A. mesax*.

*Record.* Panama Canal Zone: Barro Colorado Island, 1-7 July 1950; Experimental Gardens, 26 July 1954 (both A. M. Chickering).

#### ACHAEARANEA MESAX, new species

##### Figures 53-56

*Steatoda taeniata*, F. P. Cambridge, 1902, *Biologia Centrali Americana*, Araneidea, vol. 2, p. 382, pl. 36, figs. 3, 4, ♀, ♂ (err. det.).

*Theridion alacre*, Banks, 1929, *Bull. Mus. Comp. Zool.*, vol. 69, p. 84 (err. det.).

*Types.* Male holotype, female allotype and one female paratype from Barro Colorado Island, Canal Zone, July 6, 1954 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Female: Carapace yellow with a dusky median line and dusky border. Sternum yellow. Legs golden yellow, ends of segments darker or dusky. Abdomen gray with characteristic white lines and dark spots (Fig. 53). Venter gray with some lighter spots. Eyes subequal in size, posterior median eyes separated by two-thirds their diameter, by three-quarters of width from laterals. Height of clypeus equals about two diameters of the anterior median eyes. Abdomen without a tubercle. Two spiracles near spinnerets, one-third distance between these and genital furrow. Epigynum has two large openings (Fig. 55) which lead into thin walled sacs of the internal genitalia (Fig. 54). Distance between openings and their shape variable. Area between openings and genital furrow often swollen, thus openings may face anterior. Total length of females 3.1-5.0 mm. One female total length: 3.5 mm. Carapace 1.49 mm. long, 1.29 mm. wide. First femur, 3.50 mm.; patella and tibia, 3.20 mm.; metatarsus, 2.9 mm.; tarsus, 0.87 mm. Second patella and tibia, 1.94 mm.; third, 1.23 mm.; fourth, 2.14 mm.

Male: Anterior median eyes two-thirds diameter apart, one-quarter diameter from laterals, posterior eyes one diameter apart. Palpus illustrated by Figure 56. Total length 1.4-1.6 mm. Male holotype total length 1.6 mm. Carapace, 0.78 mm. long; 0.70 mm. wide. First femur, 1.33 mm.; patella and tibia, 1.36 mm.; metatarsus, 1.20 mm.; tarsus, 0.50 mm. Second patella and tibia, 0.92 mm.; third, 0.62 mm.; fourth, 0.81 mm.

*Diagnosis.* Only the wider and longer embolus of the palpus (Fig. 56) separate this species from *A. obnubilum* Keyserling, found in Brazil.

Specimens determined by F. P. Cambridge as *Steatoda taeniata* Keyserling were examined.

*Records.* *Veracruz*: 10 mi. S. of San José del Carmen, April 16, 1953 (L. I. Davis). *Tabasco*: Teapa (F. P. Cambridge, 1902). *Panama*: Boquerón River; Gamboa. *Canal Zone*: Barro Colorado Island; Summit; Fort Randolph; Experimental Gardens; Fort Sherman. *Cuba*: Soledad, Vilcher's Hill, Aug. 1931 (L. A. Worley), ♀.

ACHAEARANEA MACHAERA, new species

Figure 51

*Type.* Male type from El Volcán, Panama, March 7, 1936 (W. J. Gertsch), in the American Museum of Natural History.

*Description.* Carapace, sternum orange. Legs light yellow. Abdomen red except for black cap on dorsum and a large black spot on venter. Anterior median eyes slightly larger than others, their diameter apart, less than a quarter from laterals. Posterior eyes their diameter apart. Total length of male 1.3 mm. Carapace, 0.65 mm. long, 0.65 mm. wide. Second patella and tibia, 0.81 mm.; third, 0.55 mm.; fourth, 0.80 mm.

*Diagnosis.* The conductor of the palpus which is enormously enlarged (Fig. 51) distinguishes this species.

#### ACHAEARANEA TRAPEZOIDALIS (Taczanowski)

*Achacaranea trapezoidalis*, Levi, 1955, Amer. Mus. Novitates, no. 1718, p. 9, figs. 7-18, ♀, ♂.

*Distribution.* South America, north to Panama.

*Records.* Panama: Arraiján. Canal Zone: Experimental Gardens; Forest Reserve; Summit; Chilibre; Barro Colorado Island. Lesser Antilles: Trinidad: Balandra Bay.

#### ACHAEARANEA TESSELATA (Keyserling), new combination Figures 70-71

*Theridion tessellatum* Keyserling, 1884, Die Spinnen Amerikas, vol. 2, no. 1, p. 48, pl. 2, fig. 27, ♀ (♀ type from Nancho, Peru, in the Warsaw, Poland, Museum). Kraus, 1955, Abhandl. Senckenbergischen Naturf. Gesell., no. 493, pl. 16, pl. 2, fig. 30, ♀.

Figures were made from specimens in the Paris Museum determined by Keyserling.

*Distribution.* Peru; Venezuela; Rio de Janeiro, Brazil (Keyserling, 1883); El Salvador (Kraus, 1955).

#### ACHAEARANEA PICADOI (Banks), new combination Figures 57-60

*Theridion picadoi* Banks, 1909, Proc. Acad. Nat. Sci. Philadelphia, p. 204. (♀ type from Orosi, Costa Rica, in the Museum of Comparative Zoology.)

*Steatoda americana*, Banks, 1909, *ibid.*, p. 205 (err. det.).

*Theridion alaere*, Banks, 1929, Bull. Mus. Comp. Zool., vol. 69, p. 84 (err. det.).

*Description.* Female: Carapace yellow-brown, dusky on sides. Sternum, legs brown. Abdomen dorsum with a lanceolate brown



spot enclosed by a white line from which go two to three white lines down each side. Rich brown in between lines. Venter brown between genital groove and spinnerets, lighter on each side. Some females have abdomen almost gray. Anterior median eyes one diameter apart, less than one-quarter from laterals. Posterior median eyes one and one-quarter diameters apart, two-thirds from laterals. Epigynum (Figs. 58, 60) a deep oval depression with a narrow translucent lateral and posterior rim. Connecting ducts (Figs. 57, 59) dark and unlike those of *A. tessellata*. Total length of females 4.0-4.5 mm. Total length of type, 4.3 mm. Carapace, 1.4 mm. long, 1.3 mm. wide. First femur, 2.2 mm.; patella and tibia, 2.0 mm.; metatarsus, 2.0 mm.; tarsus, 0.7 mm. Second patella and tibia, 1.5 mm.; third, 1.2 mm.; fourth, 1.9 mm.

*Variation.* The connecting ducts of northern specimens are slightly diverging as they approach the seminal receptacles. It is possible that *A. tessellata* is a race of this species.

*Distribution.* *A. picadoi* may be cosmopolitan. Among some theridiids loaned to me from Merauke, New Guinea, by Fr. Chrysanthus was a specimen believed to be this species. Since the males are unknown and the females can only be recognized by examining internal genitalia, which unfortunately has not been done by many arachnologists, it is not known if it has been described from other areas.

*Records.* *Tamaulipas:* Villa Juárez (L. I. Davis). *San Luis Potosí:* Tamazunchale (L. I. Davis). *Distrito Federal:* (H. Wagner). *El Salvador:* (Kraus, 1955); San Salvador (J. B. Bourso). *Costa Rica:* Escazú; Anonos (Tristan). *Canal Zone:* Barro Colorado Isl. (sev. coll.). *Trinidad:* St. Augustine.

#### ACHAEARANEAE MANZANILLO, new species

Figures 27-28

*Types.* Female holotype from Miramar, Manzanillo, Colima, Mexico, January 15, 1943 (F. Bonet), in the American Museum of Natural History.

*Description.* Female: Coloration similar to that of *A. rupicola* (Emerton), except for first legs, the femora and patellae of which are white, with only distal ends of tibiae and metatarsi striped. Eyes subequal in size; posterior medians separated by

one-half their diameter, by one-third from laterals. Height of clypeus equals one diameter of anterior median eyes. Abdomen with a large posterior tubercle. Total length, 1.8 mm. Carapace, 0.74 mm. long, 0.65 mm. wide. First femur, 1.04 mm.; patella and tibia, 0.97 mm.; metatarsus, 0.68 mm.; tarsus, 0.44 mm. Second patella and tibia, 0.65 mm.; third, 0.52 mm.; fourth, 0.78 mm.

*Diagnosis.* This species can be distinguished from others of the *A. rupicola* group by the widely separated dark spots and the median lobe of the anterior margin of the epigynum (Fig. 28), as well as by the internal genitalia (Fig. 27).

ACHAEARANEA OBLIVIA (O. P. Cambridge), new combination  
Figures 61-63

*Theridion oblivium* O. P. Cambridge, 1896, *Biologia Centrali Americana*, Araneidea, vol. 1, p. 207, pl. 24, fig. 13, ♀. (♀ type from Costa Rica in the British Museum, Natural History.) Roewer, 1942, *Katalog der Araneae*, vol. 1, p. 496.

*Steatoda obliva*, F. P. Cambridge, 1902, *Biologia Centrali Americana*, Araneidea, vol. 2, p. 383, pl. 36, fig. 9, ♀.

*Description.* Female: Carapace dusky yellow-brown. Sternum dusky brown. Legs yellowish-white, patellae and middle and distal ends of segments with dusky brown rings; brown rings as long as light ones. Abdomen black with lighter patches; a white band from tubercle to spinnerets, narrow near tubercle, wider near spinnerets. Anterior median eyes one diameter apart, three-quarters from laterals. Posterior eyes one diameter apart. Clypeus projecting below eyes. Abdomen with a tubercle. Epigynum (Figs. 62, 63) a projecting lobe with two dark spots on the tip. Measurements: total length 5.2 mm. Carapace 2.2 mm. long, 1.8 mm. wide. First femur, 3.7 mm.; patella and tibia, 4.2 mm.; metatarsus, 4.0 mm.; tarsus, 1.4 mm. Second patella and tibia, 2.7 mm.; third, 2.0 mm.; fourth, 3.2 mm.

*Comments.* This species may belong to the genus *Tidarren*; the male is not known. Specimens determined by F. P. Cambridge were examined.

*Records.* *Costa Rica:* La Verbena (Tristan). *Panama:* El Volcán, August 4-9, 1950 (A. M. Chickering). Cerro Punta, Chir., March 4, 1936 (W. J. Gertsch).

ACHAEARANEA ROSTRATA (O. P. Cambridge), new combination  
Figures 64-66

*Theridion rostratum* O. P. Cambridge, 1896, *Biologia Centrali Americana*, Araneidea, vol. 1, p. 204, pl. 24, fig. 10, ♀. (♀ type from Teapa, Tabasco, in the British Museum, Natural History.) Roewer, 1942, *Katalog der Araneae*, vol. 1, p. 497.

*Description.* Female: Carapace, sternum, dusky brown. Legs, dusky brown with indistinct darker bands. Abdomen black with characteristic white streaks on dorsum. Anterior median eyes three-quarters diameter apart, one-quarter diameter from laterals. Posterior eyes three-quarters diameter apart. Abdomen without tubercle. Two spiracles one-third distance between spinnerets and genital groove. Epigynum (Figs. 65, 66) cone shaped with a white tip; on each side of tip is an opening. Duct of internal genitalia (Fig. 64) coiled. Total length, 2.3-3.2 mm. Measurements: total length, 2.5 mm. Carapace, 0.98 mm. long, 0.85 mm. wide. First femur, 1.33 mm.; patella and tibia, 1.30 mm.; metatarsus, 1.09 mm.; tarsus, 0.62 mm. Second patella and tibia, 0.93 mm.; third, 0.73 mm.; fourth, 1.17 mm.

*Comments:* Several specimens determined by Cambridge from the type locality were examined.

*Record.* *Guatemala:* Chicoyito (Sargent). *Costa Rica:* Tejar de Cartago (Tristan).

THERIDIION Walckenaer

*Theridion* Walckenaer, 1805, *Tableau des aranéides*, p. 72. Type species *Aranca picta* Walckenaer, designated by Opinion 517 of the Int. Comm. on Zool. Nomencl., May 30, 1958. Name placed on Official List of Generic Names in Zoology.

*Wamba* O. P. Cambridge, 1896, *Biologia Centrali Americana*, Araneidea, vol. 1, p. 190. Type species by monotypy *Wamba congener* O. P. Cambridge (= *Theridion atropunctatum* Petrunkevitch).

The species placed in this genus are all of medium size and have relatively long legs. Unlike many theridiid genera, *Theridion* lacks a colulus. The palpus is complex, a radix is always present; only rarely is this structure reduced or secondarily absent. The carapace and abdomen are not modified, although the abdomen may be wider than long.

The following species of this region, described in *Theridion*, do not belong to it, and also do not belong to the other genera revised in this paper.

*cambridgei* Petrunkevitch, 1911, belongs to *Chryso*.

*delebile* Petrunkevitch, 1930 = *Coleosoma floridanum* Banks.

*fordulum* Banks, 1909 = *Tidarren fordum* (Keyserling).

*jucundum* O. P. Cambridge, 1896 = *Anelosimus jucundus*.

*munifex* O. P. Cambridge, 1896 = *Chrosiothes silvaticus* Simon [*Theridiotis probabilis* (O. P. Cambridge)]. NEW SYNONYMY.

*santaanae* Kraus, 1955, belongs to the family Nesticidae.

*splendens* Roewer, 1942, belongs to *Chryso*.

The following species of *Theridion* has been inadequately described, without illustration, and the type has been lost: *fuesslyi* Simon, 1894, from St. Vincent Island.

#### THE THERIDION MURARIUM GROUP

Species of this group found in this region and also occurring north of Mexico, illustrated in a previous paper (1957, Bull. Amer. Mus. Nat. Hist., vol. 112), are:

#### THERIDION MURARIUM Emerton

*Theridion murarium*, Levi, 1957, p. 22, figs. 12, 57, 58, 61-63, ♀, ♂; map 5.

*Distribution*. Southern Canada, south to Chiapas.

#### THERIDION RABUNI Chamberlin and Ivie

*Theridion rabuni*, Levi, 1957, p. 28, figs. 81-86, ♀, ♂, map 7.

*Distribution*. United States and Bahama Isl.

*Additional record*. Bahama Isl.: Crooked Isl. (E. B. Hayden).

#### THERIDION CINCTIPES Banks

*Theridion cinctipes*, Levi, 1957, p. 29, figs. 87, 88, 99, ♂; map 11.

*Distribution*. Texas and Jalisco.

#### THERIDION MYERSI Levi

*Theridion myersi* Levi, 1957, p. 31, figs. 95-98, ♀, ♂; map 12.

*Distribution*. Florida, Tamaulipas to Oaxaca, Jamaica.

*Additional Records. Jamaica:* Palisades, Kingston (A. M. Chickering); Mona, St. Andrew Par. (A. M. Chickering); Agric. School, St. Catherine Par. (A. M. Chickering).

#### THERIDION FLAVONOTATUM Becker

*Theridion flavonotatum*, Levi, 1957, p. 34, figs. 102, 103, 107, 109, ♀, ♂; map 9.

*Distribution.* Southeastern United States, Cuba.

*Additional record. Cuba:* Soledad, Vilehe's Hill, Oriente (L. G. Worley).

#### THERIDION DILUTUM Levi

*Theridion dilutum* Levi, 1957, p. 37, figs. 112, 123-125, ♀, ♂; map 10.

*Distribution.* Southwestern United States to Oaxaca.

*Additional records. Nuevo León:* Villagrán (V. Roth and W. J. Gertsch). *Chihuahua:* 25 mi. W. of Camargo (W. J. Gertsch). *San Luis Potosí:* Valles (W. J. Gertsch and V. Roth). *Nayarit:* 20 mi. N. of Tepic (W. J. Gertsch and V. Roth). *Jalisco:* W. side of Lago de Sayula (W. J. Gertsch and V. Roth). *Guanajuato:* San Miguel Allende (C. and P. Vaurie). *Hidalgo:* Alfajayucan, Ixmiquilpan (H. Wagner); Tepeji (A. M. and L. I. Davis). *Oaxaca:* Huajuapán (H. Wagner).

#### THERIDION CYNICUM Gertsch and Mulaik

*Theridion cynicum*, Levi, 1957, p. 39, figs. 126-128, ♀, ♂; map 11.

*Distribution.* Texas to Guerrero.

*Additional records. Tamaulipas:* Río Guajolotes, 40 mi. S. of Victoria, ♂. *Hidalgo:* Jacala, ♀. *Veracruz:* Plan del Río, ♂. *Guerrero:* 11 mi. W. of Chilpancingo, ♀ (all W. J. Gertsch and V. Roth).

#### THERIDION CAMERONENSE Levi

Figures 74, 75

*Theridion cameronense* Levi, 1957, p. 40, figs. 114, 115, ♀; map 14.

*Comments.* The loop of the connecting ducts is longer in southern specimens. In a specimen from Guerrero it reached the anterior end of the seminal receptacles.

*Distribution.* Southern Texas to southern Mexico.

*Additional Records.* *Tamaulipas:* Ciudad Victoria (A. M. and L. I. Davis). *Nuevo León:* Villagrán (V. Roth; W. J. Gertsch). *Guerrero:* Taxco (L. Isaacs). *Chiapas:* Río de las Flores, 30 km. NE. of Cintalapa (H. Wagner).

#### THERIDION AUSTRALE Banks

*Theridion australe*, Levi, 1957, p. 41, figs. 131, 132, 148-151, map 12.

*Comments.* A male and a female from the West Indies differ in lacking the black cap over the eyes, and the male has a median apophysis lacking the ventral lobe which extends toward the proximal end of the palpus; thus it appears to look more like the median apophysis of *T. hidalgo* or *T. geminipunctum* (which are not found in the West Indies and have a different embolus). There is some indication that *T. goodnighthorum* is a subspecies of *T. australe*.

A male specimen had been labeled paratype of *Theridion maricaoense* Bryant.

*Distribution.* Utah, southeastern United States, Puerto Rico, West Indies.

*Records.* *Bahama Isl.:* Cockburn Town, San Salvador Isl., ♂ (Rabb, L. Giovannoli). *Haiti:* hill nr. Port au Prince, 2000 ft. (P. J. Darlington). *Puerto Rico:* Maricao Forest, 2500 ft., ♂ (P. J. Darlington).

#### THERIDION GOODNIGHTORUM Levi

*Theridion goodnighthorum* Levi, 1957, p. 41, figs. 129, 130, 145-147, ♀, ♂; map 12.

*Comments.* Most specimens from Mexico have a dusky venter. The species differs from *T. australe* in being larger in size and having different coloration: the genitalia are very similar. However, since West Indian *T. australe* lack the typical coloration of that species, and since Mexican specimens of *T. goodnighthorum* seem smaller, it is very possible that *T. goodnighthorum* will have to be considered a subspecies of *T. australe*.

*Distribution.* Wyoming to California south to southern Mexico.

*Additional records.* *Nayarit:* Jalisco (Blanche). *Hidalgo:* 10-25 mi. S. of Jacala (V. Roth and W. J. Gertsch). *Distrito*



*Federal*: Xochimilco (H. Wagner). *Puebla*: Tehuacán (V. Roth and W. J. Gertsch). *Chiapas*: Pichucaleo (C. and M. Goodnight).

#### THERIDION HIDALGO Levi

*Theridion hidalgo* Levi, 1957, p. 43, figs. 133, 134, 139-141, ♀, ♂; map 13.

*Distribution*. Central Texas to Tamaulipas.

*Additional record*. *Tamaulipas*: Padilla (W. J. Gertsch).

#### THERIDION GEMINIPUNCTUM Chamberlin

*Theridion geminipunctum*, Levi, 1957, 135-136, 142-144, ♀, ♂; map 13.

*Distribution*. Southern California, Baja California.

#### THERIDION TRANSGRESSUM Petrunkevitch

*Theridion rotundum* O. P. Cambridge, 1898, *Biologia Centrali Americana*, Araneidea, vol. 1, p. 254, pl. 34, fig. 7, ♀ (♀ types from Pátzcuaro, Michoacan, in the British Museum, Natural History). Name preoccupied by *Theridion rotundum* Keyserling, 1891. NEW SYNONYMY.

*Theridion transversum* O. P. Cambridge, 1898, *ibid.*, p. 256, pl. 35, figs. 3, 4, ♀, ♂ (♀, ♂ types from Mexico City, in the British Museum, Natural History). Name preoccupied by *Theridion transversum* Nicolet, 1849.

*Stactoda compressa* F. P. Cambridge, 1902, *op. cit.*, vol. 2, p. 383, pl. 36, fig. 12, ♀. New name for *Theridion rotundum*. Not *Achaea compressa* Keyserling, 1884. NEW SYNONYMY.

*Theridion rotundatum* Petrunkevitch, 1911, *Bull. Amer. Mus. Nat. Hist.*, vol. 29, p. 204. New name for *Theridion rotundum*. NEW SYNONYMY.

*Theridion transgressum* Petrunkevitch, 1911, *op. cit.*, p. 208. New name for *Theridion transversum*. Levi, 1957, p. 47, figs. 154, 157, 158, ♀, ♂; map 14.

*Comment*. Since some arachnologists might still consider *Achaea compressa* Keyserling to belong to *Theridion*, stability of nomenclature would be served by keeping the name *Theridion transgressum*.

*Distribution*. Utah to Central Mexico.

*Additional Records*. *Durango*: 10 mi. E. of El Salto (W. J. Gertsch). *Hidalgo*: 6 mi. N. of Jacala (C. and P. Vaurie). *Morelos*: Zempoala N. P., 2800 m. (B. Malkin).

## THERIDION KAWEA Levi

*Theridion kawea* Levi, 1957, p. 48, figs. 118, 119, ♀; map 6.

*Distribution.* Utah, California to Chihuahua.

## THERIDION SUBMISSUM Gertsch and Davis

Figures 89-90

*Theridion submissum*, Levi, 1957, p. 38, figs. 116, 117, ♂, map 11.

*Description.* Female: Coloration yellow-white, except abdomen which is white. Anterior median eyes one diameter apart almost touching laterals. Posterior eyes their diameter apart. Total length 2.3 mm. Carapace 0.91 mm. long, 0.78 mm. wide. First femur, 1.43 mm.; patella and tibia, 1.52 mm.; metatarsus, 1.17 mm.; tarsus, 0.52 mm. Second patella and tibia, 0.77 mm.; third, 0.52 mm.; fourth, 0.89 mm.

The epigynum has an indistinct depression close to the posterior border, and is somewhat swollen in the middle (Fig. 90).

*Distribution.* Southwestern United States to Chiapas, Jamaica, Bahamas.

*Additional Records.* *Jalisco*: nr. Tequila, ♂ (V. Roth and W. J. Gertsch). *Oaxaca*: San Felipe, ♂ (H. Wagner). *Chiapas*: Cintalapa, ♂ (H. Wagner). *Bahama Isl.*: Rum Cay nr. Port Nelson, ♀ (Hayden and Giovannoli). *Jamaica*: 3 mi. N. of Spanish Town, St. Catharine Par., ♀ (A. M. Nadler); Mona pasture, St. Andrew Par., ♀, ♂ (A. M. Chickering); Kingston, ♀; Liguanea, St. Andrew Par., ♀ (A. M. Chickering).

## THERIDION DILUCIDUM Simon

Figures 78-81; Map 2

*Theridion dilucidum* Simon, 1897, Proc. Zool. Soc. London, p. 862 (♀ types from St. Vincent Island, Lesser Antilles, in the British Museum, Natural History).

*Theridion defunctum* Petrunkevitch, 1925, Trans. Connecticut Acad. Sci., vol. 27, p. 103, figs. 13, 14, ♂ (♂ type from Wilcox Camp at San Lorenzo River, Panama, probably lost). NEW SYNONYMY.

*Theridion atkinsi* Bryant, 1940, Bull. Mus. Comp. Zool., vol. 86, p. 317, figs. 72, 73, 77, ♀, ♂ (♂ type from Soledad, Cuba, in the Museum of Comparative Zoology). NEW SYNONYMY.

*Theridion virginus* Bryant, 1942, *ibid.*, vol. 89, p. 344, fig. 27, ♂ (♂ type from St. Croix, Virgin Islands, in the Museum of Comparative Zoology).

## NEW SYNONYMY.

*Comments.* Type specimens of *T. dilucidum* were examined. The epigynum (Fig. 79) has an anterior curved sclerotized plate, and a posterior depression; in between is a projecting carina. This species is close to *T. myersi* Levi, but can be separated by the internal female genitalia.



Map 2. Distribution of *Theridion coyoacan*, new species, and *T. dilucidum* Simon.

*Records. Costa Rica. Canal Zone:* Barro Colorado Isl., common (A. M. Chickering, A. M. Nadler); Experimental Gardens; 3 mi. N. of Pedro Miguel; Ft. Clayton; nr. Cocoli; Madden Dam; Gamboa; Forest Reserve; Pedro Miguel; Gatun; Diablo; Corozal; Summit, common (all A. M. Chickering). *Cuba:* (Bryant, 1940). *Jamaica:* Very common at low elevations. *Dominican Republic:* Puerto Plata (D. Hurst); Valle de Polo, 2-3000 ft. (H. B. Hassler). *Isla Desecheo. Puerto Rico:* Port Grillo, San Germán (A. M. Nadler). *Virgin Islands:* (Bryant, 1942). *St. Vincent Isl.:* (Simon, 1894).

## THERIDION GALERUM, new species

Figures 82-86

*Type.* Male type from Experimental Gardens, Canal Zone, Aug. 12-19, 1954 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace dusky olive to black, eyes reddish. Sternum dusky olive. Legs dusky yellow-white with black spots, distal segments darker. Abdomen black, dorsum with a median band which is white at the narrower ends, reddish in the middle and having a narrow white border; venter with a white spot posterior to genital furrow. Anterior median eyes one diameter apart, almost touching laterals. Posterior medians three-quarters diameter apart, one diameter from laterals. Total length of females 1.6-2.3 mm. A female measured total length 2.0 mm. Carapace 0.78 mm. long, 0.67 mm. wide. First femur, 0.91 mm.; patella and tibia, 0.99 mm.; metatarsus, 0.66 mm.; tarsus, 0.40 mm. Second patella and tibia, 0.75 mm.; third, 0.52 mm.; fourth, 0.78 mm. A male measured total length 1.4 mm. Carapace 0.75 mm. long, 0.66 mm. wide. First femur, 1.04 mm.; patella and tibia, 1.12 mm.; metatarsus, 0.78 mm.; tarsus, 0.39 mm.; Second patella and tibia, 0.81 mm.; third, 0.52 mm.; fourth, 0.75 mm.

*Diagnosis.* The genitalia (Figs. 82-86) distinguish this from other small dark *Theridion*. The epigynum (Fig. 83) is a depression on a coneshaped raised area. Often the depression is filled with a plug which is drawn out to a point (Fig. 84) but is variable in shape.

*Records.* Canal Zone: Experimental Gardens; Barro Colorado Isl.; (several coll.); Madden Dam. (all A. M. Chickering); Summit (A. M. Chickering; A. M. Nadler).

#### Theridion hispidum O. P. Cambridge

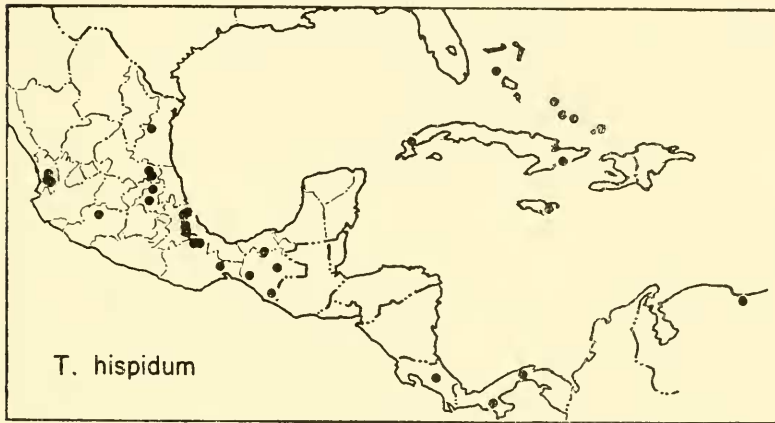
Figures 95-102; Map 3

*Theridion hispidum* O. P. Cambridge, 1898, *Biologia Centrali Americana*, Araneidea, vol. 1, p. 253, pl. 35, fig. 5, ♂ (♂ type from Teapa in Tabasco, Mexico, in the British Museum of Natural History).

*Theridion hirsutum* O. P. Cambridge, 1898, *op. cit.*, pl. 34, fig. 6, ♂. Nomen nudum.

*Description.* Carapace, sternum, legs yellow-white. Abdomen white, dorsum covered by pigment spots; sometimes dark in color. Anterior median eyes more than their diameter apart, one-third from laterals. Posterior eyes about a third their diameter apart. Epigynal depression (Figs. 96, 98, 100) sometimes with a septum. Total length of females, 1.9-3.0 mm. A

female from Panama measured 2.5 mm. total length. Carapace 0.95 mm. long, 0.80 mm. wide. First femur, 1.82 mm.; patella and tibia, 1.57 mm.; metatarsus, 1.43 mm.; tarsus, 0.52 mm. Second patella and tibia, 1.10 mm.; third, 0.70 mm.; fourth, 1.05 mm. Total length of males 1.6-2.2 mm. A male from Panama measured 1.6 mm. total length. Carapace 0.91 mm. long, 0.81 mm. wide. First femur, 1.82 mm.; patella and tibia, 1.91 mm.; metatarsus, 1.51 mm.; tarsus, 0.55 mm. Second patella and tibia, 1.24 mm.; third, 0.65 mm.; fourth, 0.98 mm.



Map 3. Distribution of *Theridion hispidum* O. P. Cambridge.

*Variation.* In several specimens from Veracruz the openings of the epigynum are much smaller (Fig. 98); it is not known if these females belong to this species or not. There is some variation in the internal genitalia of females.

*Records.* *Tamaulipas:* 40 mi. S. of Linares (A. M., L. I., C. Davis). *San Luis Potosí:* Huichihuayán (W. J. Gertsch); Valles (W. J. Gertsch; V. Roth). *Nayarit:* Tepic (B. Malkin); Compostela (W. J. Gertsch); 20 mi. S. of Tepic (W. J. Gertsch; V. Roth). *Veracruz:* Córdoba (J. C. and D. L. Pallister); Tlalpacoyan (H. Wagner); Mantla (H. Wagner); Martínez de la Torre (H. Wagner); Fortín (W. J. Gertsch; V. Roth). *Hidalgo:* Chapulhuacán (W. J. Gertsch); Ixmiquilpan (H.

Wagner). *Michoacan*: nr. Cherán (F. H. Pough). *Oaxaca*: Playa Hatí, Río Tonto (H. Wagner); Papaloápan (H. Wagner); Palomares. *Chiapas*: Ocosingo, 900 m. (C. and M. Goodnight; L. J. Starnard); Tonalá; nr. Cacahoatán (C. and M. Goodnight); Río de las Flores (H. Wagner). *Costa Rica*: San José (E. Schmidt). *Panama*: Boquete; Porto Bello (both A. M. Chickering). *Canal Zone*: Barro Colorado Isl. (many records): Experimental Gardens; Summit; (all A. M. Chickering). *Jamaica*: Stony Hill, St. Andrew Par. (A. M. Chickering). *Bahama Islands*: Cat Isl. (E. B. Hayden); Gt. Inagua Isl. (E. B. Hayden); Berry Isl. (E. B. Hayden); Crooked Isl. (G. Rabb); Long Isl. (E. B. Hayden). *Cuba*: San José (L. G. Worley); Soledad (L. G. Worley); Sierra de Anafe, Piñar del Río (M. Barro). *Venezuela*: Maracay (A. M. Nadler).

Theridion valleculum, new species  
 Figures 103-104

*Type*. Male type from El Valle, Panama, July 1936 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description*. Yellow-white except for some white pigment on dorsum of abdomen. Anterior median eyes their diameter apart, almost their diameter from laterals. Posterior median eyes one-third diameter apart, two-thirds from laterals. Total length 1.4 mm. Carapace 0.78 mm. long, 0.62 mm. wide. Third patella and tibia, 0.50 mm.; fourth, 0.73 mm.

*Diagnosis*. Details of the median apophysis (Fig. 103) and the curvature of the embolus (Fig. 104) separate this species from *T. intritum*.

Theridion bryantae Roewer  
 Figures 76, 77

*Theridion placidum* Bryant, 1948, Psyche, vol. 55, p. 58, fig. 5, ♀. (♀ type from Acapulco, Guerrero, in the Museum of Comparative Zoology). Name preoccupied by *T. placidum* Roewer, 1942.

*Theridion bryantae* Roewer, 1951, Abhandl. Naturwiss. Ver. Bremen, vol. 32, p. 455. New name for *T. placidum* Bryant preoccupied.



THERIDION ELISABETHAE Roewer  
 Figures 87, 88

*Theridion maculipes* Bryant, 1948, Psyche, vol. 55, p. 57, fig. 3, ♀. (♀ type from Acapulco, Guerrero, in the Museum of Comparative Zoology). Name preoccupied by *T. maculipes* Urquhart, 1886.

*Theridion elisabethae* Roewer, 1951, Abhandl. Naturwiss. Ver. Bremen, vol. 32, p. 455. New name for *T. maculipes* Bryant preoccupied.

*Records.* *Sinaloa*: Mazatlán (F. H. Pough). *Panama*: Playa Grande (A. M. Nadler).

THERIDION GERTSCHI, new species  
 Figures 91, 92

*Type.* Female type from Madera, Chihuahua, July 5, 1947 (W. J. Gertsch), in the American Museum of Natural History.

*Description.* Carapace, sternum dusky orange. Legs yellow-white with orange bands. Dorsum of abdomen with a medium white stripe the sides of which are black; sides of dorsum light gray. Sides of abdomen white. Venter dark with a large white spot between genital groove and spinnerets. Anterior median eyes slightly larger than others, their diameter apart, one-quarter from laterals. Posterior median eyes oval, their longest radius apart, their largest diameter from laterals. Total length of female 3.0 mm. Carapace 1.35 mm. long; 1.17 mm. wide. First femur 2.14 mm.; patella and tibia, 2.26 mm.; metatarsus, 1.85 mm.; tarsus, 0.72 mm. Second patella and tibia, 1.55 mm.; third, 0.96 mm.; fourth, 1.54 mm.

*Diagnosis.* The epigynum which is a relatively flat shield has the rim curled at the anterior (Fig. 92) and differentiates this species from others of the *T. murarium* group.

*Records.* *Arizona*: Madera Canyon, Santa Rita Mts. (W. J. Gertsch). *Chihuahua*: Madera (W. J. Gertsch).

THERIDION DAVISORUM, new species  
 Figures 72, 73

*Type.* Female type from 25 miles west of Monterrey, Nuevo León, July 6, 1936 (L. I. Davis), in the American Museum of Natural History.

*Description.* Carapace, sternum, legs yellow-white, legs with a few black lines crossing venter of segments. Abdomen white. Anterior median eyes slightly larger than others, three-quarters their diameter apart, almost touching laterals. Posterior median eyes two-thirds diameter apart, one diameter from laterals. Total length of female 2.9 mm. Carapace 1.04 mm. long, 0.91 mm. wide. First femur, 1.62 mm.; patella and tibia, 1.69 mm.; metatarsus, 1.30 mm.; tarsus, 0.59 mm. Second patella and tibia, 1.05 mm.; third, 1.00 mm.; fourth, 1.06 mm.

*Diagnosis.* This species differs from *T. camerouense* in that the openings of the epigynum (Fig. 73) are farther from the margin. The internal genitalia also differ.

THERIDION CENTRUM, new species

Figures 208, 209

*Type.* Female type from Chiriqui Province, Panama, 1938, in the American Museum of Natural History.

*Description.* Carapace yellow-white with a median dusky band, wide in front, narrow behind. Legs yellow-white with narrow dusky bands around ends of femora, middle and ends of tibiae and metatarsi. Abdomen yellow-white with median dorsal white patches forming a band and a series of black spots on the sides and a pair of black spots above spinnerets. Eyes subequal in size; anterior median eyes one and one-quarter diameters apart, one-third diameter from laterals. Posterior eyes one diameter apart. Chelicerae with two teeth on anterior margin. Total length 3.3 mm. Carapace 1.4 mm. long, 1.0 mm. wide. First femur 3.2 mm., patella and tibia 3.2 mm., metatarsus 3.0 mm., tarsus 0.9 mm. Second patella and tibia 1.7 mm., third 1.1 mm., fourth 1.9 mm.

*Diagnosis.* The epigynum having an opening near the posterior margin and the duct of the internal genitalia (Figs. 208, 209) separate this species from *Theridion arizonense*.

THERIDION ARCHERI, new species

Figures 93, 94

*Type.* Female type from Ceiba, Oriente, Cuba, from Camp of Babun Lumber Co., July 2, 3, 1955 (A. F. Archer), in the American Museum of Natural History.

*Description.* Carapace, sternum, legs yellow. Abdomen with white pigment and two rows of small dusky spots on dorsum. Anterior median eyes slightly larger than others, two-thirds diameter apart, less than one-fourth from laterals. Posterior eyes slightly less than one diameter apart. Total length of female 3.0 mm. Carapace 0.96 mm. long, 0.81 mm. wide. First femur 1.32 mm.; patella and tibia, 1.46 mm.; metatarsus, 1.14 mm.; tarsus, 0.55 mm. Second patella and tibia, 0.97 mm.; third, 0.77 mm.; fourth, 1.20 mm.

*Diagnosis.* The epigynum and the internal genitalia (Figs. 93, 94) separate this species from others of the *T. murarium* group.

*Record.* Cuba: Santiago, Oriente (P. Alayo).

#### THERIDION CAVIPALPE (F. P. Cambridge)

##### Figure 205

*Scatoda cavipalpus* F. P. Cambridge, 1902, *Biologia Centrali Americana*, Araneidea, vol. 2, p. 382, pl. 36, fig. 6, ♂ (♂ type from Guatemala, in the British Museum, Natural History).

*Theridion cavipalpe*, Roewer, 1942, *Katalog der Araneae*, vol. 1, p. 491.

The cymbium of the palpus is modified like in *Theridion michelbacheri*.

*Record.* Guatemala: Nebaj (C. and P. Vaurie).

#### THE THERIDION FRONDEUM GROUP

Species belonging to this group found in this region and also occurring north of Mexico, illustrated in a previous paper (1957, *Bull. Amer. Mus. Nat. Hist.*, vol. 112) are:

#### THERIDION PUNCTIPES Emerton

*Theridion punctipes*, Levi, 1957, p. 75, figs. 261-266, ♀, ♂; map 34.

*Distribution.* Pacific coast states, Baja California.

#### THERIDION FRONDEUM Hentz

*Theridion frondeum*, Levi, 1957, p. 81, figs. 288-289, 298-299, ♀, ♂; map 27.

*Comments.* Although there are many literature records of *T. frondeum* from the West Indies, Mexico to South America, these

are probably all misidentifications. However, one male of this species, whose range is the eastern United States north of Georgia, was found in Englishtown, Bahamas, July 14, 1937 (C. B. Fairchild), probably introduced.

*THERIDION ADJACENS* (O. P. Cambridge)

Figures 111-117; Map 4

*Phyllonethis thorellii* O. P. Cambridge, 1894, *Biologia Centrali Americana*, Araneidea, vol. 1, p. 132, pl. 18, fig. 1, ♂ (♂ type from Omilteme, Guerrero, in the British Museum, Natural History).

*Phyllonethis adjacens* O. P. Cambridge, 1896, *op. cit.*, p. 166, pl. 20, fig. 1, ♀ (♀ type from Omilteme, Guerrero, in the British Museum, Natural History).

*Theridion thorellii*, F. P. Cambridge, 1902, *ibid.*, vol. 2, p. 390, pl. 36, figs. 28, 29, ♀, ♂. Name preocc. by *T. thorellii* L. Koch, 1865.

*Theridion adjacens*, Roewer, 1942, *Katalog der Araneae*, vol. 1, p. 489.



Map 4. Distribution of *Theridion adjacens* (O. P. Cambridge) and *T. antillanum* Simon.

*Description.* Carapace, sternum, legs yellow. Abdomen white with white pigment covering sides and dorsum; also some black spots on dorsum and above spinnerets. Total length of female 5.6 mm. Carapace 1.9 mm. long, 1.3 mm. wide. First femur, 4.7 mm.; patella and tibia, 4.9 mm.; metatarsus, 5.6 mm.; tarsus, 1.4 mm.; second patella and tibia, 2.6 mm.; third, 1.6 mm.; fourth, 3.0 mm. Total length of male 3.4 mm. Carapace 1.3 mm. long, 1.2 mm. wide. First femur, 3.7 mm.; patella and tibia, 4.0 mm.; metatarsus, 4.4 mm.; tarsus, 1.1 mm. Second patella and tibia, 2.3 mm.; third 1.3 mm.; fourth 2.2 mm.

The epigynum, a slitlike depression (Figs. 114, 115, 117) varies in proportions; its dark spots are variable in shape. The tegulum and embolus of the palpus are quite variable in shape.

*Records.* *Nuevo León:* Chipinque nr. Monterrey (A. M. and L. I. Davis); Horsetail Falls (L. I. Davis). *Durango:* 6 mi. NE. of, 10 mi. E. of El Salto (W. J. Gertsch); *Distrito Federal:* Xochimilco (H. Wagner); Contreras (H. Wagner; J. C. and D. L. Pallister); Santa Rosa (H. Wagner). *Morcos:* 7 mi. N. of Cuernavaca (L. I. Davis); Cuernavaca (N. L. H. Krauss). *Vcracruz:* Jalapa (J. C. and D. L. Pallister); Coatepec (C. and P. Vaurie). *Hidalgo:* Apuleo (H. Wagner); Chapulhuacán (W. J. Gertsch); 10-20 mi. S. of Jacala (V. Roth, W. J. Gertsch); Alfajayucan, Ixmiquilpan (H. Wagner); Huachinango (C. Goodnight). *Michoacan:* Cerro Tancitaro (H. Hoogstraal); Uruapan (N. L. H. Krauss); Quiroga (R. Dreisbach). *Puebla:* Villa Juárez (H. M. Wagner); Huachinango (H. M. Wagner); 8 mi. S. Teziutlán (C. and P. Vaurie). *Oaxaca:* Oaxaca (B. Malkin; C. and P. Vaurie). *Guatemala:* Lago de Atitlán (C. and M. Goodnight); Chimaltenango, Yepocapa Dept. (H. Elishewitz). *Honduras:* (Von Hagen). *Costa Rica:* Volcán Poás (Tristan); Cartago (N. L. H. Krauss). *Panama:* Boquete; El Volcán (A. M. Chickering); Cerro Punta (N. L. H. Krauss; W. J. Gertsch).

THERIDION COYOACAN, new species  
Figures 107-110; Map 2

*Type.* Male type from Coyoacán, Distrito Federal, Mexico, July 28, 1947 (H. Wagner), in the American Museum of Natural History.

*Description.* Carapace yellow-white with a median black line on the posterior half, two parallel lines on the anterior meeting the posterior median eyes; border black. Sternum, legs, yellow-white. Abdomen covered by white pigment, except venter; two black spots above spinnerets; dorsum with a few scattered circular black spots. Anterior median eyes a little more than their diameter apart, one-third diameter from laterals in female, three-quarters in male. Posterior median eyes one diameter apart, one and one-third from laterals. Total length of female 3.6 mm. Carapace 1.3 mm. long, 1.2 mm. wide. Second patella and tibia.

1.4 mm.; third, 0.9 mm.; fourth, 1.6 mm. Total length of male 3.3 mm. Carapace 1.4 mm. long, 1.2 mm. wide. First femur, 3.3 mm.; patella and tibia, 3.7 mm.; metatarsus, 3.1 mm.; tarsus, 0.7 mm. Second patella and tibia, 2.3 mm.; third, 1.1 mm.; fourth, 1.7 mm.

*Diagnosis.* Details of the genitalia (Figs. 107-110), particularly the shape of the palpal embolus, distinguish this species from others of the *frondeum* group.

*Records.* *Chihuahua:* Catarinas (W. J. Gertsch). *Durango:* Rodeo (W. J. Gertsch); Palos Colorados, 8000 ft. (W. J. Gertsch); 6 mi. NE. of El Salto (W. J. Gertsch). *Jalisco:* Lagos de Moreno (R. Dreisbach). *Hidalgo:* Apulco (H. Wagner); Ixmiquilpan (H. Wagner); Tenango (H. Wagner). *Distrito Federal:* Coyoacán, ♀, ♂ paratypes (H. Wagner); Xochimilco; Pedregal (H. Wagner); Aeolman, 2300 m. (H. Wagner); San Jerónimo (J. C. and D. L. Pallister). *Tlaxcala:* Tlaxcala (V. Roth and W. J. Gertsch). *Guerrero:* Taxco (L. Isaacs). *Oaxaca:* San Felipe (H. Wagner).

THERIDION BARBARAE, new species

Figures 120-123

*Type.* Male type from Santa Bárbara, Chihuahua, July 18, 1947 (W. J. Gertsch), in the American Museum of Natural History.

*Description.* Carapace yellow-white with a median dusky line, which is double in front. Legs yellow-white with yellow rings on ends of segments. Abdomen white with four small black spots on dorsum. Anterior eyes of female one and one-third diameters apart, two-thirds from laterals. Posterior median eyes two-thirds diameter apart, one diameter from laterals. Eyes of male slightly smaller and farther apart. Total length of female 2.9 mm. Carapace 1.3 mm. long, 1.0 mm. wide. First femur, 2.0 mm.; patella and tibia, 2.3 mm.; metatarsus, 2.0 mm.; tarsus, 0.7 mm. Second patella and tibia, 1.4 mm.; third, 0.9 mm.; fourth, 1.6 mm. Total length of male 2.9 mm. Carapace 1.3 mm. long, 1.1 mm. wide. Second patella and tibia, 2.5 mm.; third, 1.0 mm.; fourth, 1.9 mm.

*Diagnosis.* The structure of the tegulum, conductor and embolus (Fig. 121) distinguish this species from *T. sanctus*.

*Record.* *Chihuahua:* 22.4 mi. S. of Miñaca (R. Smith).



THERIDION ROTHII, new species  
 Figures 105-106

*Type.* Male type from two miles west of Río Frío, 3200 m. Distrito Federal, Mexico, July 24, 1956 (W. J. Gertsch and V. Roth), in the American Museum of Natural History.

*Description.* Carapace yellow-white with a median dusky band which is widest in front. Legs yellow; ends of segments dusky. Abdomen white with two rows of black spots; venter with a dusky circle surrounding pedicel and genital area. Anterior median eyes almost half the diameter of others. Anterior median eyes a little more than their diameter apart, two-thirds from laterals. Posterior median eyes less than one diameter apart, one and one-quarter from laterals. Total length of a male 2.7 mm. Carapace 1.3 mm. long, 0.9 mm. wide. First femur, 2.2 mm.; patella and tibia, 2.7 mm.; metatarsus, 2.0 mm.; tarsus, 0.8 mm. Second patella and tibia, 1.6 mm.; third, 0.9 mm.; fourth, 1.4 mm.

*Diagnosis.* The convolutions of the palpal ducts (Fig. 106) differentiate this species from *T. adjacens*.

*Records.* *Hidalgo:* Jacala (V. Roth and W. J. Gertsch). *Distrito Federal:* Desierto de los Leones (J. C. and D. L. Pallister). *Mexico:* Ixtapan de la Sal (H. Wagner). *Oaxaca:* Oaxaca (B. Malkin).

THERIDION SANCTUS, new species  
 Figures 118-119

*Type.* Male type from Nombre de Dios, Durango, Aug. 17, 1947 (W. J. Gertsch), in the American Museum of Natural History.

*Description.* Yellow-white except dorsum of abdomen which is white and has at times small black spots. Anterior median eyes a little more than their diameter apart, less than their diameter from laterals. Total length of male 2.3 mm. Carapace 1.2 mm. long, 0.9 mm. wide. First femur, 2.5 mm.; patella and tibia, 2.7 mm.; metatarsus, 2.6 mm.; tarsus, 0.8 mm. Second patella and tibia, 1.5 mm.; third, 0.9 mm.; fourth, 1.5 mm.

*Diagnosis.* This species differs from *T. barbarae* in the shape of the tegulum of the palpus (Fig. 119).

*Records.* *Durango*: Nombre de Dios, ♂ paratype (W. J. Gertsch). *Hidalgo*: Alfajayucan, Ixmiquilpan (H. Wagner); 10-20 mi. S. of Jacala (V. Roth and W. J. Gertsch). *Puebla*: 12 mi. N. of Acatlán (L. I. and A. M. Davis). *Veraacruz*: Río Blanca (R. Dreisbach). *Guerrero*: 11 mi. W. of Chilpancingo (W. J. Gertsch and V. Roth). *Chiapas*: Río de las Flores (H. Wagner); Chiapa (H. Wagner).

THERIDION DREISBACHI, new species

Figures 201-202

*Type.* Male holotype from San Blas, Nayarit, Sept. 14, 1957 (R. Dreisbach), in the Museum of Comparative Zoology.

*Description.* Carapace yellowish with a median gray band whose sides are parallel. Sternum yellow. Legs yellowish with a black mark on ends of femora and tibiae. Abdomen gray with a median dorsal row of white pigment spots, whose posterior end has a large black spot on each side; black spots on each side of spinnerets. Eyes subequal in size. Anterior median eyes their diameter apart. Posterior median eyes their diameter apart, a little more than a diameter from laterals. Chelicerae with proximal knobs. Total length 2.7 mm. Carapace 1.2 mm. long, 1.0 mm. wide. First femur, 2.8 mm.; patella and tibia, 3.0 mm.; metatarsus, 2.9 mm.; tarsus, 1.0 mm. Second patella and tibia, 1.6 mm.; third, 1.0 mm.; fourth, 1.5 mm.

*Diagnosis.* The shape of the palpal embolus (Fig. 202) and median apophysis (Fig. 201) separate this species from *Theridion sanctus* and others of the *frondeum* group.

THERIDION CRUCUM, new species

Figures 142-143

*Type.* Male type from National Park near Las Cruces, Chihuahua, Mexico, June 11, 1941 (A. M. and L. I. Davis), in the American Museum of Natural History.

*Description.* Carapace, sternum, legs yellow-white. Carapace with a median double line. Dorsum of abdomen white, with a median band which is black in the middle and white towards spinnerets; a pair of black spots above spinnerets. Eyes small; anterior medians slightly smaller than others, two diameters

apart, one and one-quarter from laterals. Posterior median eyes one and one-quarter diameters apart, one and one-half from laterals. Total length of male 3.3 mm. Carapace 1.6 mm. long, 1.3 mm. wide. First femur, 2.8 mm.; patella and tibia, 3.2 mm.; metatarsus, 2.9 mm.; tarsus, 0.9 mm. Second patella and tibia, 2.0 mm.; third, 1.1 mm.; fourth, 1.8 mm.

*Diagnosis.* The narrow palpus with a very long median apophysis (Figs. 142, 143) separates this species from others of the *T. frondum* group.

*Records.* *Distrito Federal:* Santa Rosa (H. Wagner); Desierto de los Leones (C. Goodnight).

#### THERIDION TRISTANI, new species

Figures 136, 137

*Type.* Male type from Santa María Dota, Costa Rica (Tristan), in the Museum of Comparative Zoology.

*Description.* Abdomen with white pigment and two rows of black spots on dorsum and probably a pair of black spots on venter. Anterior median eyes probably one and one-quarter diameters apart, two-thirds from laterals. Posterior eyes one diameter apart. Total length, 3.5 mm. Carapace 1.5 mm. long, 1.3 mm. wide. First femur, 0.43 mm.; patella and tibia, 0.49 mm.; metatarsus, 0.47 mm.; tarsus, 1.4 mm. Second patella and tibia, 0.27 mm.; third, 0.15 mm.; fourth, 0.23 mm.

The only known specimen of this species is in very poor condition; it had been determined as *T. biolleyi* by Banks.

*Diagnosis.* This species differs from *T. everum* in the subtegulum of the palpus lacking the median notch and in the embolus having an ectal projection (Fig. 137).

#### THERIDION EVEXUM Keyserling

Figures 124-135; Map 5

*Theridion everum* Keyserling, 1884, Die Spinnen Amerikas, vol. 2, pt. 1, p. 65, pl. 3, fig. 39, ♀ (♀ type from N. Granada, in the British Museum, Natural History). Roewer, 1942, Katalog der Araneae, vol. 1, p. 492.

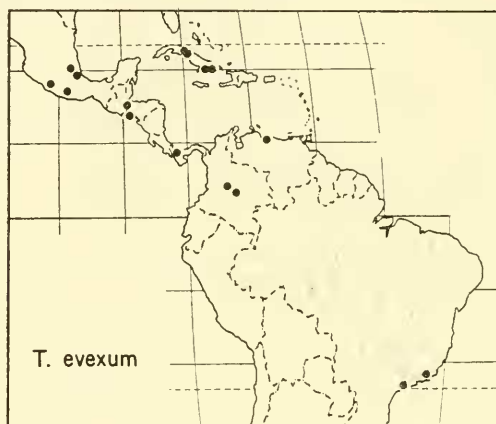
*Phyllonethis electa* O. P. Cambridge, 1895, Biologia Centrali Americana, Araneidea, vol. 1, p. 165, pl. 20, fig. 2, ♀, ?fig. 3 ♀ (♀ type from

Omiteme, Guerrero, in the British Museum, Natural History).

*Theridion electum*, F. P. Cambridge, 1902, *ibid.*, vol. 2, p. 390, pl. 36, fig. 27, ♂.

*Theridion cabriolatatum* Franganillo, 1930, Mas Aracnidos Nuevos de Cuba, p. 12, fig. 4, ♀ (♀ types from Sierra Maestra, Cuba). Roewer, 1942, Katalog der Araneae, vol. 1, p. 490. NEW SYNONYMY.

*Comment.* This large brightly colored species has a dorsal abdominal pattern like *T. pictipes*. The venter of the abdomen has a white spot framed by black stripes similar to the female



Map 5. Distribution of *Theridion evexum* Keyserling.

believed to be *T. omitemi* (Fig. 174). The long legs have black rings like *Chrysso cambridgei*. It differs from the latter species in having an abdomen of typical shape. The epigynum is a depression (Figs. 125, 127) of variable shape. There is considerable variation in the shape of several palpal sclerites; however, the embolus is similar in all males examined, and the subtegulum has a characteristic notch (Figs. 129, 131, 133, 135).

*Records.* *Michoacan*: Iau-Itaro, ♀ (Hoogstraal). *Hidalgo*: Chapulhuacan, ♂ (W. J. Gertsch). *Puebla*: Villa Juárez, ♂ (H. M. Wagner). *Veracruz*: La Planta de Moctezuma nr. Fortín, ♀ (C. and M. Goodnight). *Guerrero*: Omitemi (O. P. Cambridge, 1895). *Guatemala*: Los Amates, ♀, ♂ (Kellerman). *El Salvador*: San Salvador (Kraus, 1955). *Panama*: El Vol-

cán, ♀, ♂ (A. M. Chickering; W. J. Gertsch). *Cuba*: Mts. N. of Imías, 3-4000 ft., ♀; Trinidad Mts., 2500-3500 ft., ♂; S. side of Pico Turquino, ♀, ♂; Sierra del Cobre, 3000-3800 ft., ♀; 5 mi. E. of Soledad, Oriente, ♀ (all P. J. Darlington); Mina Carlota, Trinidad Mts., ♀, ♂ (Salt and Myers); Sierra del Cobre, 2600-3325 ft. (S. C. Bruner). *Colombia*: N. Granada (Keyserling, 1884); Boyaca Prov.: Río Upia, 850-950 m, ♀. *Venezuela*: Rancho Grande, ♀ (W. Beebe). *Brazil*: Est. Rio de Janeiro: Petrópolis, 850-1000 m; ♀ (H. Sick); Cidade São Paulo, ♀ (H. Sick).

THERIDION RICENSE, new species

Figures 138-141

*Type*. Male holotype from El Yunque, Puerto Rico, Feb. 27-28, 1955 (A. M. Nadler), in the American Museum of Natural History.

*Description*. Carapace yellow-white with a wide black band in female, a dusky band in male. Sternum, legs yellow-white. Legs with indistinct dark marks. Abdomen yellowish, dorsum spotted with white pigment. Anterior median eyes slightly smaller than others, a little more than a diameter apart, their radius from laterals. Posterior eyes slightly less than their diameter apart. Total length of female 3.8 mm. Carapace 1.4 mm. long, 1.1 mm. wide. First femur, 3.4 mm.; patella and tibia, 3.5 mm.; metatarsus, 3.6 mm.; tarsus, 0.9 mm. Second patella and tibia, 2.1 mm.; third, 1.2 mm.; fourth, 2.4 mm. Total length of male 2.9 mm. Carapace 1.2 mm. long, 1.0 mm. wide. First femur, 3.5 mm.; patella and tibia, 3.6 mm.; metatarsus, 3.6 mm.; tarsus, 1.0 mm. Second patella and tibia, 2.1 mm.; third, 1.1 mm.; fourth, 2.2 mm.

*Diagnosis*. The epigynum which has a small oval depression, wider than long (Fig. 139), and the median apophysis and tegulum of the palpus (Figs. 140, 141) separate this species from others of the *T. frondeum* group.

THERIDION LEONES, new species

Figures 148-151

*Type*. Male type from Desierto de los Leones, Distrito Federal, Mexico, May 26, 1946 (J. C. and D. L. Pallister), in the American Museum of Natural History.

*Description.* Carapace yellow-white with a dusky median stripe which becomes as wide anterior as posterior median eyes; border dusky. Sternum, legs yellow-white; legs with dusky rings on middle and ends of segments. Abdomen with white median dorsal band whose sides are wavy; sides of dorsum black to gray; sides, venter white. Anterior median eyes one diameter apart, two-thirds from laterals. Posterior median eyes one diameter apart, one and one-third from laterals. Total length of a female, 3.3 mm. Carapace 1.2 mm. long, 1.1 mm. wide. First femur, 1.9 mm.; patella and tibia, 2.0 mm.; metatarsus, 1.7 mm.; tarsus, 0.6 mm. Second patella and tibia, 1.3 mm.; third, 0.8 mm.; fourth, 1.4 mm. Total length of a male 2.2 mm. Carapace 1.1 mm. long, 0.9 mm. wide. Second patella and tibia, 1.3 mm.; third, 0.8 mm.; fourth, 1.3 mm.

*Diagnosis.* The epigynum has a circular to wider than long depression whose lateral walls are heavily sclerotized (Fig. 149). The shorter legs, lack of black mark on the sternum of the female and the shape of the tegulum of the male palpus (Fig. 151) separate this species from *T. contreras*.

*Records.* *Distrito Federal.* Desierto de los Leones, ♀, ♂ paratypes (J. C. and D. L. Pallister; C. Goodnight, F. Bonet and Bolivar).

#### THERIDION CONTRERAS, new species

Figures 144-147

*Type.* Male type from Contreras, Distrito Federal, Mexico, 2600 m., July 23, 1947 (H. Wagner), in the American Museum of Natural History.

*Description.* Carapace, sternum, legs whitish in female, darker yellowish in male. Carapace with head dusky. Sternum with a median black line on posterior portion. Legs with distal ends of segments yellow. Abdomen yellow-white, with a median dorsal white band. Male with some black pigment on abdomen. Anterior eyes slightly larger than others in female, subequal in male, their diameter apart, two-thirds from laterals. Posterior median eyes one diameter apart, one and one-half from laterals. Total length of female 3.4 mm. Carapace 1.3 mm. long, 1.1 mm. wide. First femur, 2.7 mm.; patella and tibia, 2.9 mm.; metatarsus, 2.6 mm.; tarsus 0.7 mm. Second patella and tibia, 1.8



mm.; third, 1.0 mm.; fourth, 1.8 mm. Total length of male 2.7 mm. Carapace 1.3 mm. long, 1.2 mm. wide. First femur, 3.1 mm.; patella and tibia, 3.5 mm.; metatarsus, 3.0 mm.; tarsus, 0.9 mm. Second patella and tibia, 2.2 mm.; third, 0.9 mm.; fourth, 1.8 mm.

*Diagnosis.* The shape of the tegulum of the male palpus (Fig. 147), the longer legs, dusky mark on the sternum and wider epigynum (Fig. 145) differentiate this species from *T. leones*.

*Records.* *Durango:* 6 mi. NE. of El Salto (W. J. Gertsch). *Hidalgo:* Apuleo (H. Wagner). *Distrito Federal:* Santa Rosa, ♀ paratypes (H. Wagner).

#### THERIDION METABOLUM Chamberlin and Ivie

Figures 152-158

*Theridion niveum*, Banks, 1929, Bull. Mus. Comp. Zool., vol. 69, p. 84 (err. det.).

*Theridion metabolum* Chamberlin and Ivie, 1936, Bull. Univ. Utah, biol. ser., vol. 3, no. 5, p. 33, pl. 10, fig. 79, ♀ (♀ type from Barro Colorado Island, Panama, in the American Museum of Natural History).

*Description.* Carapace white. Sternum black. Legs white with black rings. Abdomen white with dorsal white and black spots (Fig. 154), venter gray except for black genital area. Anterior median eyes one diameter apart, two-thirds from laterals. Posterior eyes one diameter apart. Total length of females 2.3-3.8 mm. A female measured total length 2.9 mm. Carapace 1.1 mm. long, 1.0 mm. wide. First femur 3.1 mm.; patella and tibia, 3.2 mm.; metatarsus, 3.0 mm.; tarsus, 1.0 mm. Second patella and tibia, 1.7 mm.; third, 0.9 mm.; fourth, 1.6 mm. A male measured total length 2.1 mm. Carapace 1.1 mm. long, 0.8 mm. wide. First femur, 3.2 mm.; patella and tibia, 3.2 mm.; metatarsus, 3.0 mm.; tarsus, 1.0 mm. Second patella and tibia, 1.7 mm.; third, 0.9 mm.; fourth, 1.5 mm.

*Records.* *Panama:* El Valle (A. M. Chiekering). *Canal Zone:* Experimental Gardens; Summit; Forest Reserve; Madden Dam; Ft. Sherman; Barro Colorado Isl., very common (all A. M. Chiekering).

#### THERIDION NIVEUM O. P. Cambridge

Figures 162-167

*Theridion niveum* O. P. Cambridge, 1898, Biologia Centrali Americana, Araneidea, vol. 1, p. 255, pl. 34, fig. 11, ♀ (♀ type from Bugaba,

Panama, in the British Museum, Natural History). F. P. Cambridge, 1902, *ibid.*, vol. 2, p. 390, pl. 37, figs. 1, 2, ♀, ♂. Roewer, 1942, Katalog der Araneae vol. 1, p. 496. (Not *T. niveum*, Petrunkevitch, 1930, Trans. Connecticut Acad. Sci., vol. 30, p. 204, figs. 51, 52, err. det.)

*Description.* Carapace, sternum, legs yellow. Abdomen yellowish white, dorsum with white pigment, sometimes with an anterior median black spot or black spots on sides. Anterior median eyes one and one-half diameters apart, one from laterals. Posterior median eyes one diameter apart. Chelicerae with two teeth on anterior margin. Epigynum (Figs. 163, 164) a projecting knob having an opening on each side. Measurements of female total length, 2.5 mm. Carapace, 1.0 mm. long. First femur, 2.0 mm.; patella and tibia, 2.1 mm.; metatarsus, 1.9 mm.; tarsus, 0.8 mm. Second patella and tibia, 1.1 mm.; third, 0.7 mm.; fourth, 1.3 mm. Total length of male 1.6 mm. Carapace, 0.8 mm. long. First femur, 2.4 mm.; patella and tibia, 2.5 mm.; metatarsus, 2.5 mm.; tarsus, 0.7 mm. Second patella and tibia, 1.6 mm.; third, 0.8 mm.; fourth, 1.3 mm.

These descriptions are from males and females from Teapa, Mexico, determined by F. P. Cambridge. The specimens were in poor condition, having probably once been dry. A male of *T. trepidum* determined by F. P. Cambridge proved to be the same species.

*Natural History.* This species has been collected on bromeliads in Veracruz by Bordas.

*Records.* *San Luis Potosí:* 23 mi. S. of Ciudad de Valles (A. M. and L. I. Davis); Xilitla (R. Dreisbach). *Veracruz:* Martínez de la Torre, 45 m. (H. Wagner); Córdoba (J. C. and D. L. Pallister); Tlacotalpan (H. Wagner); La Buena Ventura (A. Petrunkevitch); Tuxtilla (H. Wagner); Mantla; Yanaa (Bordas). *Guerrero:* Amula, Omiltemi (O. P. Cambridge). *Oaxaca:* Papaloapan (H. Wagner). *Chiapas:* El Real (C. and M. Goodnight); Puerto Madero (N. L. H. Kraus).

THERIDION EXCAVATUM F. P. Cambridge  
 Figures 206-207

*Theridion excavatum* F. P. Cambridge, 1902, Biologia Centrali Americana, Araneidea, vol. 2, pl. 37, fig. 5, ♀ (♀ type from Guatemala, in the British Museum, Natural History). Roewer, 1942, Katalog der Araneae, vol. 1, p. 492.

THERIDION UNCATUM F. P. Cambridge  
 Figures 203-204

*Theridion uncatum* F. P. Cambridge, 1902, *Biologia Centrali Americana*, Araneidea, vol. 2, p. 390, pl. 37, fig. 3, ♂ (♂ type from Omilteme, Guerrero, in the British Museum, Natural History). Roewer, 1942, *Katalog der Araneae*, vol. 1, p. 500.

THERIDION STYLIGERUM F. P. Cambridge  
 Figures 168-171

*Theridion styligerum* F. P. Cambridge, 1902, *Biologia Centrali Americana*, Araneidea, vol. 2, p. 389, pl. 36, fig. 24, ♂ (♂ type from Guatemala, in the British Museum, Natural History).

*Description.* Carapace yellow-white with a median dusky band which splits in two anteriorly, each branch touching a posterior median eye. Legs yellow-white, banded in male. Abdomen yellow-white, dorsum white with two black spots above spinnerets; often a pair of black spots on venter. Anterior median eyes one and one-half diameters apart, one and three-quarters from laterals. Posterior median eyes one diameter apart, one and three-quarters from laterals. Total length of female 3.2 mm. Carapace 1.3 mm. long, 1.2 mm. wide. First femur, 2.6 mm.; patella and tibia, 2.7 mm.; metatarsus, 2.7 mm.; tarsus, 0.9 mm. Second patella and tibia, 1.6 mm.; third, 1.1 mm.; fourth, 1.9 mm. The epigynum has an oval depression (Fig. 169); the embolus of the palpus is enlarged (Fig. 171).

*Natural History.* This species has been found in oak forest at 7200 ft. in Veracruz.

*Records.* *Durango*: 30 mi. NE., 10 mi. E., 6 mi. NE. of El Salto (W. J. Gertsch). *Veracruz*: nr. Aculzingo (C. Goodnight). *Hidalgo*: Apulco (H. Wagner); 10-20 mi. S. of Jacala (V. Roth, W. J. Gertsch). *Distrito Federal*: Santa Rosa (H. Wagner); Contreras, 2600 m. (H. Wagner); Xochimileo (C. Goodnight; H. Wagner); Coyoacan (H. Wagner); Tlalpam, 2300 m. (H. Wagner). *Puebla*: Tecitlan (C. and P. Vaurie). *Morelos*: nr. Cuernavaca, 8700 ft. (R. Dreisbach). *Oaxaca*: (B. Malkin). *Guatemala*: Chichicastenango (C. and P. Vaurie); Nebaj (C. and P. Vaurie).

THERIDION TREPIDUM O. P. Cambridge  
Figures 177-180

*Theridion trepidum* O. P. Cambridge, 1898, *Biologia Centrali Americana*, Araneidea, vol. 1, p. 256, pl. 34, fig. 10, ♂ (♂ type from Montaña de Chilascó, Guatemala, in the British Museum, Natural History). F. O. P. Cambridge, *ibid.*, 1902, vol. 2, p. 391, pl. 37, fig. 4, ♂. Roewer, 1942, *Katalog der Araneae*, vol. 1, p. 499.

*Phyllonethis trepidum* O. P. Cambridge, 1902, *Biologia Centrali Americana*, Araneidea, vol. 1, p. 307, pl. 39, fig. 9, ♀.

*Description.* Carapace, sternum, legs yellow white; carapace with a median dusky double line. Legs of male with dark rings. Dorsum of abdomen white usually with a pair of black bands, irregular in outline, about their width apart. Anterior median eyes one and three-quarters diameters apart, one diameter from laterals. Posterior eyes one and one-quarter diameters apart. Anterior median eyes slightly smaller than others. Total length of female 2.4 mm. Carapace 0.85 mm. long, 0.75 mm. wide. First femur, 2.16 mm.; patella and tibia, 2.18 mm.; metatarsus, 2.10 mm.; tarsus, 0.69 mm. Second patella and tibia, 1.28 mm.; third, 0.75 mm.; fourth, 1.37 mm. The epigynum has an oval depression (Fig. 178). The male can be identified by its palpus (Figs. 179, 180).

*Records.* *Hidalgo*: Rancho Viejo nr. Jacala (C. and M. Goodnight). *Distrito Federal*: Santa Rosa (H. Wagner); Desierto de los Leones (C. Goodnight). *Puebla*: ?Tehuaitlan (H. Wagner). *Oaxaca*: Oaxaca. *Chiapas*: Tenejapa (C. Goodnight); Las Casas (C. and M. Goodnight and L. Stannard); San Cristóbal de las Casas (C. and M. Goodnight; H. Wagner). *Panama*: El Volcán (W. J. Gertsch).

THERIDION MARTINI, new species  
Figures 181-182

*Type.* Male type from Volcan San Martín, near San Andrés, Veraeruz, 5000 ft., July 14, 1948 (C. J. Goodnight), in the American Museum of Natural History.

*Description.* Carapace, sternum, legs bright yellow. Abdomen light gray with four small dark spots on dorsum. Anterior median eyes slightly smaller than others, less than one diameter apart, one-third from laterals. Posterior median eyes one diame-

ter apart, two-thirds from laterals. Total length of male 2.5 mm. Carapace 1.3 mm. long, 1.1 mm. wide. First femur, 2.3 mm.; patella and tibia, 2.7 mm.; metatarsus, 2.1 mm.; tarsus, 0.9 mm. Second patella and tibia, 1.8 mm.; third, 1.3 mm.; fourth, 1.7 mm.

*Diagnosis.* The heavy median apophysis of the palpus (Figs. 181, 182) separates this species from others of the *T. frondeum* group.

#### THERIDION OMIITEMI, new species

Figures 172-176

*Theridion vexum*, F. P. Cambridge, 1902, *Biologia Centrali Americana*, Araneidea, vol. 2, p. 389, pl. 36, fig. 25, ♂, ♀ (err. det.).

*Type.* Male type from Omiltemi, Guerrero, in the British Museum (Natural History).

*Description.* Carapace brownish yellow. Chelicerae brown. Maxillae, sternum dark brown. Legs yellow with dark spots on distal ends of segments. Abdomen white with an anterior median dorsal black patch and a pair of black patches on posterior which are continuous with black venter (Fig. 174); venter of male dusky yellow. Anterior median eyes one diameter apart, slightly more in female, two-thirds their diameter in male. Posterior median eyes almost one diameter apart, one and one-third from laterals. Total length of female 5.8 mm. Carapace 2.2 mm. long, 1.4 mm. wide. First femur, 6.3 mm.; patella and tibia, 5.5 mm.; metatarsus, 6.8 mm.; tarsus, 1.5 mm. Second patella and tibia, 3.6 mm.; third, 2.2 mm.; fourth, 4.0 mm. Total length of male 3.6 mm. Carapace 1.7 mm. long, 1.2 mm. wide. First femur, 5.0 mm.; patella and tibia, 4.3 mm.; metatarsus, 5.8 mm.; tarsus, 1.3 mm. Second patella and tibia, 2.7 mm.; third, 1.4 mm.; fourth, 2.5 mm.

Differences in coloration might suggest that the female does not belong to the male.

*Diagnosis.* The median apophysis of the palpus (Fig. 175) distinguishes this species from *T. vexum*.

*Record.* Guatemala: San Jerónimo (C. and P. Vaurie).

#### THERIDION GRECIA, new species

Figures 185-186

*Type.* Female type from Grecia, Costa Rica, Nov. 22, 1955 (B. Malkin), in the American Museum of Natural History.

*Description.* Carapace whitish with a median dusky line. Legs whitish with distal end of first tibiae and middle and distal end of metatarsi black. Abdomen yellow-white with a median dorsal white band and a white band on each side. Anterior median eyes a little more than one diameter apart, one diameter from laterals. Posterior eyes slightly more than one diameter apart. Total length of female, 2.9 mm. Carapace, 1.0 mm. long, 0.9 mm. wide. First femur, 2.2 mm.; patella and tibia, 2.2 mm.; metatarsus, 1.9 mm.; tarsus, 0.7 mm. Second patella and tibia, 1.2 mm.; third, 0.9 mm.; fourth, 1.5 mm.

*Diagnosis.* The epigynum whose openings are on the anterior face of a heavily sclerotized slight elevation (Fig. 186) distinguishes this species from others of the *frondeum* group.

*Records.* *Nayarit*: Tepic (C. and M. Goodnight). *Chiapas*: nr. Río San Gregorio, betw. Comitán and Ocotlán (C. and M. Goodnight); 30 km. NE. of Cintalapa (H. Wagner). *Costa Rica*: Grecia, ♀ paratype (B. Malkin). *Panama*: El Valle (A. M. Chickering). *Venezuela*: Botanical Gardens, Caracas (A. M. Nadler).

#### THERIDION BIOLLEYI Banks

##### Figures 195-196

*Theridion biolleyi* Banks, 1909, Proc. Acad. Nat. Sci. Philadelphia, vol. 61, p. 204, pl. 6, fig. 26, ♀ (♀ type from Tablazo, Costa Rica, in the Museum of Comparative Zoology).

*Description.* Carapace yellow-white with a dusky median band, as wide as eyes in front with a narrow dusky cross band. Sternum dusky. Legs yellow-white with bands. Abdomen with an indistinct white median band, sides mottled gray; a black diagonal mark on each side. Venter with a pair of black spots on the side of a larger white spot. Anterior median eyes one and one-half diameters apart, one diameter from laterals. Posterior median eyes one diameter apart, one and one-half from laterals. Epigynum with a heavily sclerotized groove (Fig. 196). Total length of female, 3.6 mm. Carapace 1.8 mm. long, 1.5 mm. wide. First femur, 3.2 mm.; patella and tibia, 3.6 mm.; metatarsus, 3.0 mm.; tarsus, 1.3 mm. Second patella and tibia, 2.2 mm.; third, 1.5 mm.; fourth, 2.6 mm.



THERIDION VULVUM, new species  
 Figures 197-198

*Type.* Female holotype from El Valle, Panama, July 1936 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace, sternum, legs yellow. Legs with distal ends of segments brown. Abdomen with a median dorsal white band on dusky background; sides with several large white spots. Anterior median eyes their diameter apart, two-thirds from laterals. Posterior median eyes one diameter apart, a little more than one from laterals. Total length of female 2.7 mm. Carapace 1.11 mm. long, 0.92 mm. wide. First femur, 1.85 mm.; patella and tibia, 1.96 mm.; metatarsus, 1.46 mm.; tarsus, 0.72 mm. Second patella and tibia, 1.29 mm.; third, 0.87 mm.; fourth, 1.40 mm.

*Diagnosis.* The heavily sclerotized epigynum (Fig. 198) differentiates this species from other species of the *T. frondeum* group.

*Record.* Panama: El Valle, ♀ paratypes (A. M. Chickering); El Volcán (W. J. Gertsch).

THERIDION HONDURENSE, new species  
 Figures 193-194

*Type.* Female type from Honduras, 1940 (Von Hagen), in the American Museum of Natural History.

*Description.* Carapace, sternum, legs yellow-white. Legs yellow at distal ends of tibiae one and four. Abdomen with three dorsal white stripes; area in between narrower than stripes; two black spots above spinnerets. Anterior median eyes smaller than others, one and one-half diameters apart, one diameter from laterals. Posterior eyes a little more than a diameter apart. Total length, 3.7 mm. Carapace 1.5 mm. long, 1.3 mm. wide. First femur, 3.5 mm.; patella and tibia, 3.5 mm.; metatarsus, 3.6 mm.; tarsus, 0.9 mm. Second patella and tibia, 2.2 mm.; third, 1.3 mm.; fourth, 2.4 mm.

*Diagnosis.* The epigynum having the openings on the anterior surface of a slight knob (Fig. 194) differentiates this species from others.

*Record.* Honduras: ♀ paratype (Von Hagen).

## THERIDION BOLIVARI, new species

Figures 189-190

*Type.* Female type from Desierto de los Leones, Distrito Federal, Mexico, Aug. 5, 1946 (C. Goodnight, Bolivar and Bonet), in the American Museum of Natural History.

*Description.* Carapace golden yellow with a black band as wide as posterior median eyes in front, narrower behind, border with a narrow black line and two black lines across clypeus. Sternum golden yellow. Legs yellow with black bands or lines on venter at middle and distal ends of segments. Dorsum and sides of abdomen covered by small white pigment spots; two lines of black patches on dorsum converging towards spinnerets. Venter with a black semicircular band anterior to pedicel, a black band across epigynum and a black spot behind genital furrow. Anterior median eyes slightly larger than others, three-quarters diameters apart, one-quarter from laterals. Posterior medians three-quarters diameter apart, one diameter from laterals. Total length of female 3.7 mm. Carapace 1.5 mm. long, 1.4 mm. wide. First femur, 2.2 mm.; patella and tibia, 2.5 mm.; metatarsus, 1.8 mm.; tarsus, 0.8 mm. Second patella and tibia, 1.8 mm.; third, 1.3 mm.; fourth, 1.9 mm.

*Diagnosis.* The structure of the epigynum (Fig. 190) differentiates this species from other *Theridion*.

## THERIDION CHIHUAHUA, new species

Figures 191-192

*Type.* Female type from Santa Bárbara, Chihuahua, July 18, 1947 (W. J. Gertsch), in the American Museum of Natural History.

*Description.* Carapace, sternum, legs yellow-white. Carapace with two fine parallel median lines. Abdomen white. Anterior median eyes their diameter apart, two-thirds diameter from laterals. Posterior median eyes one diameter apart, a little more than one from laterals. Total length of female 3.0 mm. Carapace 1.3 mm. long, 1.1 mm. wide. Second patella and tibia, 1.5 mm.; third, 1.1 mm.; fourth, 1.8 mm.

*Diagnosis.* The epigynum of this species (Fig. 192) resembles that of *T. arizonense*, but it differs in having two dark posterior areas. The internal genitalia (Fig. 191) are very different and indicate that this species belongs to the *T. froudeum* group.

THERIDION APULCO, new species  
Figures 187-188

*Type.* Female type from Apulco, Hidalgo, Oct. 6, 1947 (H. Wagner), in the American Museum of Natural History.

*Description.* Carapace whitish with a broad median black band. Clypeus dusky. Sternum, legs whitish with dark rings on distal ends of tibiae. Dorsum of abdomen with an irregular white band on each side; a white stripe above spinnerets which continues mottled and darker anteriorly. Black in between median and lateral stripes. Sides and venter yellowish with some indistinct dusky markings. Anterior median eyes slightly smaller than others one diameter apart, one-third of a diameter from laterals. Posterior median eyes three-quarters diameter apart, one diameter from laterals. Total length of female 2.2 mm. Carapace 1.04 mm. long; 0.89 mm. wide. First femur, 1.96 mm.; patella and tibia, 2.09 mm.; metatarsus, 1.62 mm.; tarsus, 0.75 mm. Second patella and tibia, 1.27 mm.; third, 0.70 mm.; fourth, 1.38 mm.

*Diagnosis.* This species, which has a median depression on the epigynum (Fig. 188), differs from *T. excavum* by its smaller size, coloration of the venter and internal genitalia (Fig. 187).

*Record.* Veracruz: Huatusco (H. M. Wegener).

THERIDION TURRIALBA, new species  
Figures 183-184

*Type.* Female type from Turrialba, Costa Rica, April 10-17, 1944 (F. Schrader), in the American Museum of Natural History.

*Description.* Carapace, sternum, legs yellow-white. Sternum with a dusky median stripe. Legs with black rings on distal ends of first tibiae. Abdomen whitish, with a white median dorsal band, which becomes narrower toward spinnerets; three white patches on each side. Eyes small. Anterior median eyes slightly smaller than others one and one-half diameters apart, one from laterals. Posterior eyes slightly more than their diameter apart. Total length of female 3.0 mm. Carapace 0.97 mm. long, 0.88 mm. wide. First femur, 2.34 mm.; patella and tibia, 2.34 mm.; metatarsus, 2.18 mm.; tarsus, 0.81 mm. Second patella and tibia, 1.30 mm.; third, 0.78 mm.; fourth, 1.40 mm.

*Diagnosis.* The epigynum is less sclerotized (Fig. 184) than that of *T. metabolum*.

*Record.* *Costa Rica*: Turrialba, May 1944 (F. Schrader).

THERIDION FRIO, new species  
Figures 199-200

*Type.* Female type from two miles west of Río Frío, 3200 m., Distrito Federal, Mexico, July 24, 1956. (W. J. Gertsch and V. Roth), in the American Museum of Natural History.

*Description.* Carapace, sternum, legs whitish. Abdomen white except for two black stripes above and radiating from spinnerets and a pair of black spots on venter. Anterior median eyes one and one-quarter diameters apart, one diameter from laterals. Posterior median eyes one diameter apart, one and one-half from laterals. Total length of female 4.0 mm. Carapace, 1.4 mm. long, 1.3 mm. wide. First femur, 2.6 mm.; patella and tibia, 2.7 mm.; metatarsus, 2.4 mm.; tarsus, 0.8 mm. Second patella and tibia, 1.5 mm.; third 1.1 mm.; fourth, 1.9 mm.

This female was collected with a male of *T. rothi*.

*Diagnosis.* The heavily sclerotized epigynum (Fig. 200) differentiates this species from others of the *T. frondeum* group.

THERIDION MORULUM O. P. Cambridge  
Figures 159-161

*Theridion morulum* O. P. Cambridge, 1898, *Biologia Centrali Americana*, Araneidea, vol. 1, p. 254, pl. 35, fig. 6, ♀. (♀ types from Omilteme, Guerrero, in the British Museum, Natural History.) Roewer, 1942, *Katalog der Araneae*, vol. 1, p. 495.

*Steatoda morula*, F. P. Cambridge, 1902, *Biologia Centrali Americana*, Araneidea, vol. 2, p. 384, pl. 36, fig. 14, ♀.

*Theridion jeanae* Gertsch and Archer, 1942, *Amer. Mus. Novitates*, no. 1171, p. 7, figs. 25, 26. (♂ holotype from Santa Catalina Mts., Arizona, in the American Museum of Natural History.) Levi, 1957, p. 79.  
NEW SYNONYMY.

*Description.* Carapace yellow. Sternum, legs, dusky yellow. Abdomen black with some dorsal median light stripes and two pairs of diagonal lines. Venter dark gray. Anterior portion of sides very light. Anterior median eyes one diameter apart, one-quarter diameter from laterals. Posterior median eyes less than

one diameter apart, one diameter from laterals. Clypeus projecting below eyes. Abdomen nearly spherical, as wide as long, height less than length. Epigynum (Figs. 160, 161) cone shaped, cone black, the tip slightly lighter. Measurements of female, total length, 3.3 mm. Carapace, 1.30 mm. long, 1.17 mm. wide. First femur, 2.02 mm.; patella and tibia, 2.28 mm.; metatarsus, 1.56 mm.; tarsus, 0.78 mm. Second patella and tibia, 1.56 mm.

*Theridion morulum* is much darker than *jeanae*, and the median apophysis is of slightly different shape. Although this is undoubtedly one species, *jeanae* might well be used as a subspecies.

*Records. Morelos:* Cuernavaca (W. J. Gertsch, V. Roth); Oaxtepec (C. Bolivar). *Puebla:* Tlacotepec (W. J. Gertsch, V. Roth).

#### Miscellaneous species of *Theridion*

The species related to *T. positivum* (*istokpoga*, *cazieri*, and *sinaloa*) are probably close to *T. frondeum*; however, the abdomen tends to be wider than long as in many other species put in this group.

Miscellaneous species found in this region and also occurring north of Mexico, illustrated in a previous paper (1957, Bull. Amer. Mus. Nat. Hist., vol. 112) are:

#### THERIDION RUFIPES Lucas

*Theridion rufipes*, Levi, 1957, p. 56, figs. 188-193, ♀, ♂, Map 18.

*Distribution.* Cosmotropical, but uncommon wherever found in the region under consideration.

*Additional records. Panama:* El Valle; Boquete (A. M. Chickering). *Cuba:* Soledad, Cienfuegos (Parsons; Salt and Myers); Vileher's Cave, Soledad (L. G. Worley). *Puerto Rico:* Aguadilla (R. Turner). *Venezuela:* Caracas (A. M. Nadler); Rancho Grande (W. Beebe).

#### THERIDION ADAMSONI Berland

*Theridion adamsoni* Berland, 1935, Bull. B. P. Bishop Museum, no. 113, p. 102, figs. 6-9, ♀ (♀ syntypes from Hitiaa, Tahiti, in the B. P. Bishop Museum, Honolulu).

*Theridion hobbsi* Gertsch and Archer, 1942, Amer. Mus. Novitates, no. 1171, p. 5, fig. 6, ♀ (♀ type from Florida, in the American Museum of Natural History). Levi, 1957, p. 62, figs. 198, 199, 209, 213, 214, ♀, ♂, map 28. NEW SYNONYMY.

*Theridion insulicola* Bryant, 1947, Psyche, vol. 54, p. 88, fig. 1, ♀. (♀ type from Mona Island, West Indies, in the Museum of Comparative Zoology). NEW SYNONYMY.

Dr. Gertsch first noticed this synonymy. The type of *T. adamsoni* was examined.

*Distribution.* Cosmotropical.

*Additional records.* Canal Zone: Summit (A. M. Chickering). Venezuela: Maracay (A. M. Nadler).

### THERIDION ATROPUNCTATUM Petrunkevitch

*Wamba congener* O. P. Cambridge, 1896, Biologia Centrali Americana, Araneidea, vol. 1, p. 191, pl. 24, fig. 1, ♂ (♂ type from Chicoyito, Guatemala, in the British Museum, Natural History). Name preoccupied by *Theridion congener* O. P. Cambridge, 1863. NEW SYNONYMY.

*Theridion atropunctatum* Petrunkevitch, 1930, Trans. Connecticut Acad. Sci., vol. 30, p. 210, figs. 59, 60, ♀ (♀ type from Arecibo, Puerto Rico, in the American Museum of Natural History). Levi, 1957, p. 66, figs. 225-228, 232-234, ♀, ♂, map 21.

*Crustulina congener*, Roewer, 1942, Katalog der Araneae, vol. 1, p. 399. NEW SYNONYMY.

*Theridion brevipalpus* Bryant, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 341, figs. 28, 31, 32, ♂ (♂ type from St. Croix, Virgin Islands, in the Museum of Comparative Zoology).

The leg length of some males seems to be shorter than others; this might be correlated with heavier sclerotization. Males from Central America have a spine on the cymbium as in *T. crispulum* but the spine is smaller and on the side of the cymbium. Females have the epigynum with a more or less circular depression having a dark spot on each side. The very short connecting ducts separate it from *T. crispulum*.

*Distribution.* Florida, Yucatan, Bimini, Puerto Rico, Virgin Isl. and Central America.

*Additional records.* Yucatan: Chichén Itzá (C. Goodnight). Panama: Arraiján (A. M. Chickering). Canal Zone: Summit; Barro Colorado Isl. (several records); Experimental Gardens; Balboa; Forest Reserve (A. M. Chickering). Jamaica: Discov-

ery Bay; St. Ann's Bay; Holland Bay; S. W. of Unity Valley; St. Catharine; Kinloss; Lyssons (all A. M. Nadler). Hardwar Gap, Blue Mts.; Kingston; St. Thomas Par. *Dominican Rep.*: Loma Vieja, Cord. Central (P. J. Darlington); La Matica, Boca Chica (A. M. Nadler); Ciudad Trujillo (A. M. Nadler). *Puerto Rico*: Cidra, Treasure Isl.; Port Grila, San Germán; Mayaguez (all A. M. Nadler). *Virgin Isl.*: St. Croix (Beatty; A. M. Nadler). *Lesser Antilles*: Antigua; St. John. Guadeloupe; Pointe-a-Pitre. Martinique: Fond la Hage. Trinidad: Piarco (all A. M. Nadler). *Venezuela*: Maracay; Caracas (A. M. Nadler).

#### THERIDION CRISPULUM Simon

*Theridion crispulum* Simon, 1895, Ann. Ent. Soc. France, vol. 64, p. 142 (♀ type from La Guiara, Venezuela, in the Museum National d'Histoire Naturelle, Paris).

*Theridion intervallatum* Emerton, 1915, Trans. Connecticut Acad. Sci., vol. 20, p. 136, pl. 1, fig. 1, ♂ (♂ type from Intervale, New Hampshire, in the Museum of Comparative Zoology). Levi, 1957, p. 64, figs. 222-224, 229-231, ♀, ♂, map 21. NEW SYNONYMY.

The type specimens of *T. crispulum* examined were marked as coming from San Esteban, Venezuela.

The spine on the cymbium of the male palp is at or close to the tip; frequently the cymbium is drawn out to the spine. The connecting ducts are much longer than those of *T. atropunctatum*; sometimes they open close together, at other times farther apart. There also seem to be differences in the thickness of the ducts.

*Distribution.* New Hampshire, southeastern United States, eastern Mexico to Central America, Lesser Antilles.

*Additional records.* *Panama*: El Volcán (A. M. Chickering). *Canal Zone*: Barro Colorado Isl.; Forest Reserve; Summit; La Boca; Ft. Sherman (A. M. Chickering). *Jamaica*: Hope Gardens; Hermitage Reservoir; Mt. James, St. Andrew Par. (A. M. Chickering). *Lesser Antilles*: Aruba: Oranjestad, ♂ (A. M. Nadler). Trinidad: nr. Port of Spain (R. Thaxter). *Venezuela*: San Esteban.



## THERIDION ISTOKPOGA Levi

*Theridion istokpoga* Levi, 1957, p. 67, figs. 235, 236, 247, 248, ♀, ♂, map 22.

The only female found in Central America has the posterior rim of the epigynum wider than Florida specimens; the openings are thus much closer to the posterior end of the depression. The legs are white with black spots on the venter.

*Distribution.* Florida, Chiapas and Canal Zone.

*Additional record.* Canal Zone: Summit, Aug. 1950, ♀ (A. M. Chickering).

## THERIDION POSITIVUM Chamberlin

*Theridion positivum* Chamberlin, 1924, Proc. California Acad. Sci., ser. 4, vol. 12, p. 636 (♀ type from Pond Island, Gulf of California, in the California Academy of Science). Levi, 1957, p. 68, figs. 237-239, 243-246, ♀, ♂, map 22.

*Theridion cybele* Bryant, 1942, Bull. Mus. Comp. Zool., vol. 89, p. 342, fig. 39, ♀ (♀ type from St. Croix, Virgin Islands, in the Museum of Comparative Zoology).

Specimens examined from Central America have the embolic thread more curved and the posterior border of the depression of the epigynum more straight, than specimens from the north.

*Distribution.* Southern California, southern Texas, Mexico, Central America and Bimini Isl. in the Greater Antilles.

*Additional records.* Canal Zone: Experimental Gardens; Summit; Chilibre (all A. M. Chickering). Cuba: San Vicente, Pinar del Río (C. and P. Vaurie). Jamaica: Kingston; Lys-sous; Negrill; Holland Bay (all A. M. Nadler); St. Thomas Par.; St. James Par.; St. Andrew Par. (A. M. Chickering). Puerto Rico: Mayaguez; La Matica, Boca Chica (all A. M. Nadler). Lesser Antilles: Antigua: St. John (A. M. Nadler). Venezuela: Maracay (A. M. Nadler).

## THERIDION ALBULUM O. P. Cambridge.

Figures 213-215

*Theridion albulum* O. P. Cambridge, 1898, Biologia Centrali Americana, Araneidea, vol. 1, p. 255, pl. 34, fig. 9, ♀ (♀ type from Bugaba, Panama, lost). Roewer, 1952, Katalog der Araneae, vol. 1, p. 489.

In general appearance this species is very much like the two preceding and can easily be confused. It differs, however, in the

shape of the base of the palpal embolus (Fig. 215) and in having two dark sclerotized plates in the depression of the epigynum (Fig. 214). The depression of the epigynum is usually filled with a white substance, which has to be removed before examination.

*Records. Canal Zone:* Summit; Forest Reserve; Boquete; Arraiján (A. M. Chickering).

THERIDION CAZIERI, new species.  
Figures 216-218

*Type.* Male type from South Bimini, Bahama Islands, June 1951 (M. A. Cazier), in the American Museum of Natural History.

*Description.* Carapace yellow-white with an irregular dusky median band which is widest in front and has two large yellow white spots behind eyes. Eye region, clypeus, median portions of chelicerae black. Sternum, legs yellow-white. Legs with many brown and black spots. Abdomen white with black spots; a median dorsal white band; several black streaks above spinners. Anterior median eyes their diameter apart, almost touching laterals. Posterior median eyes their radius apart, two-thirds diameters from laterals. Total length of female 3.1 mm. Carapace 1.1 mm. long, 1.0 mm. wide. First femur, 2.2 mm.; patella and tibia, 2.6 mm.; metatarsus, 2.0 mm.; tarsus, 0.8 mm. Second patella and tibia, 1.6 mm.; third, 0.9 mm.; fourth, 1.6 mm. Total length of male 2.7 mm. Carapace 1.3 mm. long, 1.1 mm. wide. First femur, 3.0 mm.; patella and tibia, 3.5 mm.; metatarsus, 3.0 mm.; tarsus, 0.9 mm. Second patella and tibia, 2.3 mm.; third, 1.2 mm.; fourth, 1.8 mm.

*Diagnosis.* The genitalia (Figs. 217, 218) differentiate this species from *T. positivum* Chamberlin.

*Record. Bahama Isl.:* South Bimini, ♀, May 1951 (W. J. Gertsch, M. A. Cazier).

THERIDION SINALOA, new species  
Figure 212

*Type.* Male type from north section of Mazatlán, Sinaloa, 1956 (A. F. Archer), in the American Museum of Natural History.

*Description.* Carapace yellow-white. Sternum white with a dusky border. Legs white with some black spots. Abdomen light covered with white pigment and some dusky spots and two dusky lines converging towards spinnerets on dorsum. Anterior median eyes slightly larger than others, two-thirds diameter apart, touching laterals. Posterior eyes two-thirds diameter apart. Total length of male 1.2 mm. Carapace 0.55 mm. long, 0.50 mm. wide. First femur, 0.91 mm.; patella and tibia, 1.02 mm.; metatarsus, 0.70 mm.; tarsus, 0.39 mm. Second patella and tibia, 0.69 mm.; third, 0.44 mm.; fourth, 0.62 mm.

*Diagnosis.* The shape of the embolus (Fig. 212) separates this species from *T. positivum*.

*Record. Sinaloa:* Mazatlán, ♂ paratype (A. F. Archer).

#### Theridion Antillanum Simon

Figures 223-226; Map 4

*Theridion antillanum* Simon, 1894, Proc. Zool. Soc. London, p. 522, fig. 2, ♂ (♀, ♂ syntypes from St. Vincent Isl., Lesser Antilles, in the British Museum, Natural History).

*Spintharus minutus* Petrunkevitch, 1926, Trans. Connecticut Acad. Sci., vol. 28, p. 51, fig. 11, ♀ (♀ type from St. Thomas, Virgin Isl.). NEW SYNONYMY.

*Theridion dexteri* Petrunkevitch, 1930, *ibid.*, vol. 30, p. 200, figs. 45-50, ♀, ♂ (6 ♀, 1 ♂ syntype from University Campus, Rio Piedras, Porto Rico). NEW SYNONYMY.

*Comments.* The embolus of the palpus is on the mesal side (Fig. 225). The radix seems absent; it has probably been lost secondarily as a result of the shifting of other sclerites. The ventral ducts of the epigynum (Figs. 223, 224) which form a rough rectangle or oval are sometimes wider apart, sometimes closer together; the seminal receptacles may be visible through the epigynum at times. The dark areas (coil of the duct), on each side in the epigynum, readily distinguish this species from other small *Theridion* lacking pigment.

Specimens determined by Simon were examined.

*Natural History.* It has been collected from leaves of coconut palms (Petrunkevitch, 1930).

*Records. Bahama Isl.:* South Bimini (A. M. Nadler, W. J. Gertsch; M. A. Cazier); New Providence Isl. (E. B. Hayden); West Caicos Isl. (E. B. Hayden). *Jamaica:* St. Thomas Par.:

Trelawny Par.; Hanover Par.; St. James Par.; St. Andrew Par. (many records); Manchester Par. (A. M. Chickering); St. Catherine Par. (A. M. Chickering); Holland Bay (A. M. Nadler); Lyssons (A. M. Nadler); Kinloss (A. M. Nadler); Negrill (A. M. Nadler); Kingston (A. M. Chickering). *Dominican Rep.*: Roseau; Valle de Polo. *Puerto Rico*: (Petrunkevitch, 1930): Maricao Forest, 2500 ft. (P. J. Darlington); San Juan; Cidra, Treasure Isl. (A. M. Nadler); Mayaguez (A. M. Nadler); *Virgin Isl.*: (Petrunkevitch, 1926); St. Croix (H. A. Beatty; C. E. Wilson; F. E. Lutz). *Lesser Antilles*: Guadeloupe: Point-a-Pitre (A. M. Nadler); Martinique: Fond la Haye (A. M. Nadler); St. Vincent Isl.: (Simon, 1894).

THERIDION JAMAICENSE, new species

Figures 219-222

*Type*. Male holotype from Dolphin Head Trail, Hanover Parish, Jamaica, June 24, 1954, in the Museum of Comparative Zoology.

*Description*. Yellow-white without marks. Reported to be grass-green when alive. Eyes small. Anterior medians of female almost two diameters apart, two-thirds from laterals, of male one diameter apart, one-quarter from laterals. Posterior medians two diameters apart, one from laterals. Abdomen sometimes wider than long. Total length of female 2.0 mm. Carapace 0.85 mm. long; 0.65 mm. wide. First femur, 1.62 mm.; patella and tibia, 1.56 mm.; metatarsus, 1.43 mm.; tarsus, 0.52 mm. Second patella and tibia, 1.06 mm.; third, 0.59 mm.; fourth, 1.14 mm. Total length of male 1.7 mm. Carapace, 0.91 mm. long, 0.75 mm. wide. First femur, 1.56 mm.; patella and tibia, 1.56 mm.; metatarsus, 1.30 mm.; tarsus, 0.47 mm. Second patella and tibia, 1.00 mm.; third, 0.65 mm.; fourth, 0.94 mm.

*Diagnosis*. The female of this peculiar species has a scape on the epigynum (Figs. 220, 221) which reminds one of linyphiid spiders. The palpus is quite translucent and the various sclerites are lobed. The dark portion on the right edge of the palpus (Fig. 222) is the embolus; on the left the sclerotized portion is the median apophysis. This species is believed to be related to *T. antillanum*. The genitalia distinguish the two species.

*Natural History*. This species is found on vegetation.

*Records. Jamaica:* Dolphin Head Trail, Hanover Par., ♀ paratype; Dolphin Head, 1600 ft. (G. R. Procter); Hermitage, St. Andrew Par. (Bengra); Grier Mtn., 2300 ft., St. Catherine Par. (G. R. Procter); St. Ann Par. (A. M. Nadler).

THERIDION NUDUM, new species  
Figures 227-229

*Type.* Male type from El Volcán, Panama, Aug. 9-14, 1950 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Yellow-white, lacking pigment except for a black spot on thoracic depression. Anterior median eyes slightly smaller than others, two diameters apart, three-quarters from laterals. Posterior median eyes one and three-quarters diameters apart, one from laterals. Total length of females 1.5-2.2 mm. A female measured total length 2.1 mm. Carapace 0.79 mm. long, 0.71 mm. wide. First femur, 1.36 mm.; patella and tibia, 1.36 mm.; metatarsus, 1.06 mm.; tarsus, 0.56 mm. Second patella and tibia, 0.91 mm.; third, 0.56 mm.; fourth 0.83 mm. A male measured total length 1.7 mm. Carapace 0.90 mm. long, 0.72 mm. wide. First femur, 1.20 mm.; patella and tibia, 1.24 mm.; metatarsus, 0.94 mm.; tarsus, 0.45 mm. Second patella and tibia, 0.88 mm.; third, 0.52 mm.; fourth, 0.80 mm.

One male from Chiapas has scattered red spots on the abdomen.

*Diagnosis.* This species has the abdomen wider than long; it can be separated from *T. scxmaculatum* and *T. rufipunctum* by the genitalia (Figs. 227-229).

*Records. Hidalgo:* Chapulhuacán (W. J. Gertsch). *Puebla:* Villa Juárez (H. Wagner). *Chiapas:* Tenejapa (C. Goodnight): nr. Cacahuatán, 3000 m. (C. Goodnight). *Panama:* El Volcán, ♀ allotype, ♀, ♂ paratypes; El Valle; Boquete (all A. M. Chickering).

THERIDION RUFIPUNCTUM, new species  
Figures 230-233

*Type.* Male type from El Volcán, Panama, Aug. 9-14, 1950 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace with one or two small median black spots. Sternum white. Legs white with a small black spot pro-

lateral on patellae and on distal ends of tibiae. Abdomen white, dorsum and sides with red spots (Fig. 230). Anterior median eyes one and one-half diameters apart, one from laterals. Posterior median eyes one and one-half diameters apart, one from laterals in female; one and one-half in male. Total length of females 1.8-2.2 mm. One female measured total length 2.0 mm.; carapace 0.91 mm. long, 0.71 mm. wide. First femur, 1.43 mm.; patella and tibia, 1.30 mm.; metatarsus, 1.01 mm.; tarsus, 0.74 mm. Second patella and tibia, 1.01 mm.; third, 0.59 mm.; fourth, 0.92 mm. Male measured total length, 2.0 mm. Carapace 0.91 mm. long, 0.75 mm. wide. First femur, 1.20 mm.; patella and tibia, 1.47 mm.; metatarsus, 1.00 mm.; tarsus, 0.50 mm. Second patella and tibia, 1.03 mm.; third, 0.65 mm.; fourth, 0.92 mm.

*Diagnosis.* The spotted abdomen (Fig. 230), which is wider than long in the female, and the genitalia (Figs. 231, 233) distinguish this species from *T. sexmaculatum*.

*Records.* Panama: El Volcán, ♀ allotype, paratypes (A. M. Chickering; W. J. Gertsch); Boquete (A. M. Chickering).

#### THERIDION NADLERI, new species

Figures 240-241

*Type.* Female type from Simla, near Arima, Trinidad, Dec. 28, 1954 (A. M. Nadler), in the American Museum of Natural History.

*Description.* Spider yellow-white in coloration except dorsum of abdomen which has some pigment spots. Diameter of anterior median eyes one and one-half times that of other eyes. Anterior median eyes their diameter apart, almost touching laterals. Posterior median eyes one and one-half diameters apart, two-thirds from laterals. Abdomen wider than long. Total length of female 1.9 mm. Carapace 0.75 mm. long, 0.65 mm. wide. First femur, 1.20 mm.; patella and tibia, 1.20 mm.; metatarsus, 0.81 mm.; tarsus, 0.43 mm. Second patella and tibia, 0.91 mm.; third, 0.65 mm.; fourth, 0.83 mm.

*Diagnosis.* The large opening of the epigynum (Fig. 241) differentiates this species from others.

#### THERIDION SEXMACULATUM Keyserling

Figures 236-239

*Theridion sexmaculatum* Keyserling, 1884, Die Spinnen Amerikas, vol. 1, no. 1, p. 82, pl. 4, fig. 51, ♀ (♀ syntypes from Amazonas Province,

Brazil, in the Hope Department of Entomology, Oxford University); 1886, *ibid.*, vol. 2, p. 238, pl. 20, fig. 292, ♂.

*Steatoda sexmaculata*, F. P. Cambridge, 1902, *Biologia Centrali Americana*, Araneidea, vol. 2, p. 386, pl. 36, fig. 22, ♀.

*Diagnosis.* Color yellow-white except for three pairs of black spots on abdomen (Fig. 238); the spots which are only rarely absent and the genitalia (Figs. 237, 239) distinguish this small species.

*Records.* *Guatemala. Canal Zone:* Barro Colorado Isl.; Summit; Experimental Gardens; Forest Reserve (all A. M. Chickering); El Volcán (W. J. Gertsch). *Venezuela:* Rancho Grande (A. M. Nadler).

THERIDION DOTANUM (Banks), new combination  
Figures 245-248

*Singa dotana* Banks, 1913, *Proc. Acad. Nat. Sci. Philadelphia*, vol. 65, p. 679, pl. 28, fig. 1 (♀ type from St. Maria Dota, Costa Rica, in the Museum of Comparative Zoology).

*Description.* Carapace, sternum, legs yellow-white. Legs with small black spots on distal ends of segments. Abdomen wider than long (Fig. 247) covered by white pigment and a black spot on each side; that of male narrower and darker. Eyes without black rings. Anterior median eyes more than a diameter apart, one-third of a diameter from laterals. Posterior eyes a third of a diameter apart. Anterior median eyes slightly smaller than others. Total length of female 2.5 mm. Carapace 0.94 mm. long, 1.11 mm. wide. First femur, 1.89 mm.; patella and tibia, 1.92 mm.; metatarsus, 1.40 mm.; tarsus, 0.62 mm. Second patella and tibia, 1.56 mm.; third, 1.04 mm.; fourth, 1.30 mm. Total length of male 2.0 mm. Carapace 0.98 mm. long, 0.92 mm. wide. First femur, 2.14 mm.; patella and tibia, 2.14 mm.; metatarsus, 1.50 mm.; tarsus, 0.57 mm. Second patella and tibia, 1.70 mm.; third, 0.92 mm.; fourth, 1.17 mm.

*Diagnosis.* The shape of the abdomen, the epigynum having a large bordered depression (Fig. 246) and the palpus (Fig. 248) distinguish this species from *T. sexmaculatum*.

*Record.* *Oaxaca:* Oaxaca (B. Malkin). *Panama:* El Volcán (A. M. Chickering, W. J. Gertsch).



THERIDION PALLISTERORUM, new species  
 Figures 242-244

*Type.* Male type from Contreras, Distrito Federal, 8-9000 ft., May 30, 1946 (C. J. and D. L. Pallister), in the American Museum of Natural History.

*Description.* Carapace yellow with a narrow black median line and black border. Legs yellow, femora brown to black, other segments with some black spots underneath. Abdomen white, sprinkled with black on dorsum, a white spot on the widest point on each side; venter with a median black spot. Anterior median eyes almost their diameter apart, one-third from laterals. Posterior median eyes almost their diameter apart, slightly more than a diameter from laterals. Total length of male 2.4 mm. Carapace, 1.1 mm. long, 1.1 mm. wide. First femur, 2.9 mm.; patella and tibia, 2.7 mm.; metatarsus, 1.8 mm.; tarsus, 0.7 mm. Second patella and tibia, 2.2 mm.; third, 1.0 mm.; fourth, 1.3 mm.

A female, which was slightly larger than the male, was in too poor condition for measurements.

*Diagnosis.* Only details of the palpus (Fig. 244) separate this species from *T. dotanum*. It is possible that this belongs to a northern form of the latter species.

*Record.* Distrito Federal: Santa Rosa, 2700 m., July 13, 1946, ♀ (H. Wagner).

THERIDION MINUTISSIMUM Keyserling  
 Figure 249

*Theridion minutissimum* Keyserling, 1884, Die Spinnen Amerikas, vol. 2, no. 1, p. 34, fig. 17, ♂, ♀, (♂ Lectotype here designated from Montana di Naneho, Peru, in the Polish Academy of Sciences, Warsaw.)

*Description.* Carapace, sternum orange. Most leg segments orange-white; first and second tibiae dark gray except for ends. All metatarsi dark gray. Abdomen black except for a broad horseshoe-shaped white band which encircles sides and anterior of dorsum, a white spot above spinnerets and four small white spots in center of dorsum. Anterior median eyes slightly larger than others, three-quarters diameter apart, almost touching laterals. Posterior eyes one-third diameter apart. Total length of

male 1.2 mm. Carapace 0.71 mm. long, 0.52 mm. wide. First femur, 0.91 mm.; patella and tibia, 0.96 mm.; metatarsus, 0.60 mm.; tarsus, 0.28 mm. Second patella and tibia, 0.74 mm.; third, 0.45 mm.; fourth, 0.57 mm. The type of this species was examined.

*Record. Panama Canal Zone:* Experimental Gardens, Aug. 12-19, 1954 (A. M. Chickering).

THERIDION BARROANUM, new species

Figures 234-235

*Type.* Female type from Barro Colorado Island, June 1950 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace, sternum, legs, abdomen yellow-white. Abdomen wider than long covered by white pigment on sides of dorsum and sides, but not in center of dorsum. Anterior median eyes one diameter apart, one-fourth from laterals. Posterior median eyes their radius apart, their diameter from laterals. Total length, 1.9 mm. Carapace 0.89 mm. long, 0.82 mm. wide. First femur, 1.10 mm.; patella and tibia, 1.10 mm.; metatarsus, 0.78 mm.; tarsus, 0.45 mm. Second patella and tibia, 0.98 mm.; third, 0.70 mm.; fourth, 0.85 mm.

*Diagnosis.* This species can be distinguished from other species, with an abdomen wider than long, by the position of the connecting ducts (Figs. 234, 235).

THERIDION CHIRIQUI, new species

Figures 268-271

*Type.* Male type from El Volcán, Panama, Feb. 26, 1936 (W. J. Gertsch), in the American Museum of Natural History.

*Description.* Yellow-white except for white dorsum of abdomen which is wider than long. Venter of abdomen anterior to pedicel dusky. In male, white pigment band across abdomen (Fig. 269). Anterior median eyes their diameter apart, less than one-fourth from laterals. Posterior median eyes two-thirds diameter apart, less than one-fourth in female, one radius in male from laterals. Total length of female 1.3 mm. Carapace, 0.65 mm. long, 0.55 mm. wide. First femur, 1.10 mm.; patella and tibia, 1.04 mm.; metatarsus, 0.80 mm.; tarsus, 0.39 mm.

Second patella and tibia, 0.78 mm.; third, 0.52 mm.; fourth, 0.79 mm. Total length of male 1.2 mm. Carapace, 0.61 mm. long, 0.55 mm. wide. First femur, 1.10 mm.; patella and tibia, 1.24 mm.; metatarsus, 0.83 mm.; tarsus, 0.42 mm. Second patella and tibia, 0.78 mm.; third, 0.50 mm.; fourth, 0.72 mm.

*Diagnosis.* Only the structure of the genitalia (Figs. 268, 271) distinguishes this species from *T. nudum* and others whose abdomen is wider than long. The posterior median eyes of the female almost touch the laterals.

*Record.* Panama: El Volcán, ♀, ♂ paratypes (W. J. Gertsch).

#### THERIDION PANAMENSE, new species

Figures 263-267

*Type.* Male type from El Volcán, Aug. 9-14, 1950 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace dark dusky yellow with a dark border. Sternum dark dusky. Legs yellow with irregular black patches and stripes. Dorsum of abdomen with a median dorsal white stripe, on sides black; sides of abdomen whitish, venter as illustrated (Fig. 267). Anterior median eyes one diameter apart, one-fourth diameter from laterals. Posterior eyes one diameter apart. Anterior median eyes sometimes slightly larger than others. Abdomen usually wider than long in female, not in male. Total length of females 1.6-2.5 mm. Female allotype measured total length 1.8 mm. Carapace 0.81 mm. long, 0.78 mm. wide. First femur, 1.36 mm.; patella and tibia, 1.51 mm.; metatarsus, 1.14 mm.; tarsus, 0.52 mm. Second patella and tibia, 1.05 mm.; third, 0.64 mm.; fourth, 0.98 mm. Total length of males 1.6-1.8 mm. Male type measured total length 1.6 mm. Carapace 0.88 mm. long, 0.78 mm. wide. First femur, 1.58 mm.; patella and tibia, 1.75 mm.; metatarsus, 1.48 mm.; tarsus, 0.52 mm. Second patella and tibia, 1.25 mm.; third, 0.71 mm.; fourth, 0.95 mm.

*Diagnosis.* The dark coloration, wider abdomen and epigynum with an anterior lip (Fig. 264), and the palpus, of the male (Figs. 265, 266) distinguish this from *Theridion atropunctatum*.

*Records.* Panama: Boquete (many specimens); El Valle; ♀ allotype, ♂ paratypes (all A. M. Chickering); El Volcán (A. M. Chickering; W. J. Gertsch).

THERIDION ARTUM, new species  
Figures 313-314

*Type.* Female type from Forest Preserve, Panama Canal Zone, Jan. 1958 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace dusky black, lighter in center, reddish around eyes. Sternum black. Legs yellowish with black rings on distal ends of femora, tibiae, metatarsi and irregular black spots on venter of segments. Abdomen with a median dorsal gray band, bordered by white, a white area anterior and posterior of the band. Venter black with tongues of black extending to the sides and a pair up the posterior. A pair of white spots between genital groove and spinnerets. Anterior median eyes slightly larger than others, their diameter apart and almost touching laterals. Posterior eyes their diameter apart. Total length 2.2 mm. Carapace 0.98 mm. long, 0.85 mm. wide. First femur, 1.92 mm.; patella and tibia, 1.96 mm.; metatarsus, 1.50 mm.; tarsus, 0.63 mm. Second patella and tibia, 1.22 mm.; third, 0.73 mm.; fourth, 1.23 mm.

*Diagnosis.* The epigynum (Fig. 314) which is a light area in a heavily pigmented region separates this species from *Theridion akron*. The openings are difficult to discern.

THERIDION AKRON, new species  
Figures 250-252

*Type.* Male type from Summit, Panama Canal Zone, Aug. 1950 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace dusky yellow, sternum dusky. Legs yellowish; ends of segments dusky, with dusky patches on venter. Dorsum of abdomen with a median black band on spotted white background; continuation of band white in color anterior and posterior; sides of anterior and posterior portion of dorsum darker. Venter black with a pair of white spots. Anterior median eyes slightly larger than others, one diameter apart, almost touching laterals. Posterior median eyes their radius apart, three-quarters their diameter from laterals. Total length of female 2.0 mm. Carapace 0.78 mm. long, 0.66 mm. wide. First femur, 1.50 mm.; patella and tibia, 1.60 mm.; metatarsus, 1.17

mm.; tarsus, 0.49 mm. Second patella and tibia, 0.95 mm.; third, 0.92 mm. Total length of male 1.7 mm. Carapace 0.84 mm. long, 0.71 mm. wide. First femur, 1.67 mm.; patella and tibia, 1.68 mm.; metatarsus, 1.32 mm.; tarsus, 0.53 mm. Second patella and tibia, 1.10 mm.; third, 0.66 mm.; fourth, 0.99 mm.

*Diagnosis.* The palpus (Fig. 252) resembles that of *Dipoena* or *Achaearana*; it has, however, a radix hidden behind the conductor, and the duct does not traverse the median apophysis as it does in *Dipoena*. The epigynal depression (Fig. 251) may have been covered with material in the specimens examined. The genitalia differentiate this species from *T. panamense*.

*Records.* Canal Zone: Barro Colorado Island, 2 ♀ (A. M. Chickering).

THERIDION RESUM, new species  
Figures 253-254

*Type.* Female holotype from Forest Reserve, Panama Canal Zone, Aug. 10-12, 1939 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace, sternum, legs dusky yellow. Legs with faint indications of rings or spots on venter. Dorsum of abdomen spotted white with a darker median band; venter black with a pair of white spots and a white spot anterior to pedicel, a white line above spinnerets which continues into the dark dorsal band. Anterior median eyes slightly larger than others, their diameter apart, almost touching laterals. Posterior eyes less than a diameter apart. Abdomen as wide as long. Total length of female 2.0 mm. Carapace 0.78 mm. long, 0.73 mm. wide. First femur, 1.42 mm.; patella and tibia, 1.45 mm.; metatarsus, 1.08 mm.; tarsus, 0.52 mm. Second patella and tibia, 0.98 mm.; third, 0.62 mm.; fourth, 0.99 mm.

*Diagnosis.* The epigynum which has a median depression with a posterior sclerotized rim (Fig. 254) distinguishes this species from *T. panamense*. The latter species has one ventral white spot; *T. resum* has two.

THERIDION AKME, new species  
Figures 210-211

*Type.* Female type from Summit Park, Panama Canal Zone, Dec. 1957 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace, sternum yellowish. Legs golden yellow. Abdomen yellow-white. Anterior median eyes slightly larger than others, two-thirds their diameter apart, one-fourth their diameter from laterals. Posterior median eyes less than their diameter apart, two-thirds their diameter from laterals. Legs short. Abdomen widest slightly behind middle. Total length 2.7 mm. Carapace 0.98 mm. long, 0.94 mm. wide. First femur, 1.43 mm.; patella and tibia, 1.30 mm.; metatarsus, 1.00 mm.; tarsus, 0.55 mm. Second patella and tibia, 0.98 mm.; third, 0.75 mm.; fourth, 1.14 mm.

*Diagnosis.* The epigynum (Fig. 211) and internal genitalia distinguish this species.

THE THERIDION MOCTEZUMA GROUP  
THERIDION RESERVUM, new species  
Figures 318-321

*Type.* Male type from Forest Reserve, Canal Zone, July 4-6, 1939 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace, legs yellowish. First and second femora of female with two black lines on venter, and black rings around tibia-metatarsal joint. Abdomen yellow-white with two dorsal white lines and series of black spots (Fig. 320). Anterior median eyes one diameter apart, one-fourth from laterals. Posterior medians separated by two-thirds diameter in female, by one diameter in male. Total length of female 1.9 mm. Carapace 0.68 mm. long, 0.65 mm. wide. First femur, 1.03 mm.; patella and tibia, 0.96 mm.; metatarsus, 0.80 mm.; tarsus, 0.36 mm. Second patella and tibia, 0.78 mm.; third, 0.52 mm.; fourth, 0.80 mm. Total length of male, 1.7 mm. Carapace 0.78 mm. long, 0.62 mm. wide. First femur, 1.42 mm.; patella and tibia, 1.55 mm.; metatarsus, 1.36 mm.; tarsus, 0.45 mm. Second patella and tibia, 1.00 mm.; third, 0.62 mm.; fourth, 0.95 mm.

*Diagnosis.* The striking coloration of this species as well as details of the genitalia (Figs. 319, 321) distinguish it from other species of *Theridion*.

*Record.* Canal Zone: Barro Colorado Isl. (several records). Forest Reserve, ♀, ♂ paratypes; Madden Dam (all A. M. Chickering).

THERIDION LATHROPI, new species  
 Figures 272-276

*Type.* Male type from Lathrop Trail, Barro Colorado Island, Canal Zone, July 6, 1954 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace, legs dusky yellow. Sternum dusky. Abdomen black with a median longitudinal white stripe on dorsum which is widest in middle, narrower at ends; white patches on sides and a white spot behind genital groove on venter. Anterior median eyes three-quarters diameter apart, one-quarter from laterals. Posterior median eyes one-third diameter apart, three-quarters from laterals. Total length of females 1.8-2.2 mm. A female measured total length 1.8 mm. Carapace 0.83 mm. long, 0.75 mm. wide. First femur, 1.06 mm.: patella and tibia, 1.12 mm.; metatarsus, 0.78 mm.; tarsus, 0.41 mm. Second patella and tibia, 0.81 mm.; third 0.61 mm.; fourth, 0.91 mm. Total length of males 1.6-1.8 mm. A male measured total length 1.6 mm. Carapace 0.82 mm. long, 0.73 mm. wide. First femur, 1.17 mm.; patella and tibia, 1.35 mm.; metatarsus, 1.04 mm.; tarsus, 0.45 mm. Second patella and tibia, 1.00 mm.: third, 0.65 mm.; fourth, 0.92 mm.

*Diagnosis.* The palpus (Figs. 275-276) and the epigynum which has a projecting flat hook (Fig. 274) distinguish this species.

*Records.* Panama: Porto Bello (A. M. Chickering). Canal Zone: Barro Colorado Isl. (common); Forest Reserve; Ft. Davis (A. M. Chickering).

THERIDION PETRUM, new species  
 Figures 280-284

*Type.* Male type from Barro Colorado Island, Canal Zone, Panama, Aug. 14, 1954 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace, sternum, legs dusky yellow. Abdomen black with white lines on dorsum (Fig. 283) and a white spot on venter between spinnerets and genital groove. Diameter of anterior median eyes one and one-half that of other eyes. Anterior median eyes one-half their diameter apart, one-third from lat-



erals. Posterior medians two-thirds their diameter apart, one-half from laterals. Total length of female 1.2 mm. Carapace 0.62 mm. long, 0.55 mm. wide. First femur, 0.65 mm.; patella and tibia, 0.65 mm.; metatarsus, 0.42 mm.; tarsus, 0.31 mm. Second patella and tibia, 0.53 mm.; third, 0.43 mm.; fourth, 0.55 mm. Total length of male 1.3 mm. Carapace 0.62 mm. long; 0.53 mm. wide. First femur, 0.68 mm.; patella and tibia, 0.73 mm.; metatarsus, 0.50 mm.; tarsus, 0.34 mm. Second patella and tibia, 0.57 mm.; third, 0.44 mm.; fourth, 0.60 mm.

*Diagnosis.* The palpus (Fig. 284) differentiates the male from *T. marvum*. The epigynum has a knob (Figs. 281, 282) resembling that of *T. neocomexicanum*; however, coloration and leg length differentiate the two species.

*Records.* *Canal Zone:* Barro Colorado Isl., ♂, ♀ paratypes (sev. collections). *Lesser Antilles:* Trinidad: Piareo (A. M. Nadler).

#### THERIDION MARVUM, new species

##### Figure 326

*Type.* Male type from Barro Colorado Island, Panama Canal Zone, July 30, 31, 1936 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace, sternum, legs dusky yellow. Abdomen gray with white lines on dorsum similar to *T. petrum* (Fig. 283); venter with a white spot anterior to spinnerets. Anterior median eyes two-thirds their diameter apart, one-third from laterals. Posterior medians two-thirds their diameter apart, one-half their diameter from laterals. Total length of male 1.3 mm. Carapace 0.71 mm. long, 0.55 mm. wide. First femur, 0.91 mm.; patella and tibia, 0.99 mm.; metatarsus, 0.67 mm.; tarsus, 0.39 mm. Second patella and tibia, 0.78 mm.; third, 0.53 mm.; fourth, 0.67 mm.

*Diagnosis.* Lighter coloration, slightly larger size, smaller anterior median eyes and the structure of the palpus (Fig. 326) separate this species from *T. petrum*.

*Records.* *Canal Zone:* Barro Colorado Island, ♂ paratypes (A. M. Chickering); Boquete (A. M. Chickering).

THERIDION MOCTEZUMA, new species  
 Figures 285-288

*Type.* Male type from La Planta de Moctezuma, near Fortín, Veracruz, July 7, 1947 (C. and M. Goodnight), in the American Museum of Natural History.

*Description.* Carapace, sternum, legs, dusky yellow-brown. Abdomen black with a white median dorsal band (Fig. 287), several lateral spots and a white spot on venter behind genital groove. Anterior median eyes one diameter apart, one-third from laterals. Posterior median eyes their radius apart, two-thirds from laterals. Abdomen of male with posterior muscle impressions sclerotized. Total length of female 2.5 mm. Carapace 1.04 mm. long, 0.93 mm. wide. First femur, 1.43 mm.; patella and tibia, 1.60 mm.; metatarsus, 1.20 mm.; tarsus, 0.58 mm. Second patella and tibia, 1.15 mm.; third, 0.91 mm.; fourth, 1.30 mm. Total length of male 2.3 mm. Carapace 1.04 mm. long, 0.88 mm. wide. First femur, 1.50 mm.; patella and tibia, 1.80 mm.; metatarsus, 1.40 mm.; tarsus, 0.63 mm. Second patella and tibia, 1.30 mm.; third, 0.98 mm.; fourth, 1.30 mm.

*Diagnosis.* The epigynum which has a translucent projecting knob (Fig. 286) and the palpus can be used to separate this species from *T. lathropi*.

*Records.* Veracruz: La Buena Ventura, 1909 (A. Petrunkevitch).

THERIDION COBANUM, new species  
 Figures 291-292

*Type.* Female holotype from Cobán, Guatemala, July 1947 (C. and P. Vaurie), in the American Museum of Natural History.

*Description.* Carapace yellow-brown with a median dusky line. Sternum, legs yellow-brown; legs with faint indications of darker rings. Dorsum of abdomen with two rows of large black spots, their diameter apart; almost no white pigment present; venter dusky. Anterior median eyes their diameter apart, one-third their diameter from laterals. Posterior eyes two-thirds diameter apart. Total length of female, 2.5 mm. Carapace, 1.30 mm. long, 1.04 mm. wide. First femur, 1.80 mm.; patella and

tibia, 1.93 mm.; metatarsus, 1.46 mm.; tarsus, 0.69 mm. Second patella and tibia, 1.48 mm.; third, 1.06 mm.; fourth, 1.61 mm.

*Diagnosis.* The epigynum (Fig. 292) distinguishes this species from *T. moctezuma*.

*Record.* *Tabasco:* Teapa (C. and M. Goodnight).

#### THERIDION ASPERSUM (F. P. Cambridge)

Figures 311-312

*Steatoda aspersa* F. P. Cambridge, 1902, *Biologia Centrali Americana*, Araneidea, vol. 2, p. 384, pl. 36, fig. 13, ♀ (♀ type from Guatemala, in the British Museum, Natural History).

*Theridion aspersum*, Roewer, 1942, *Katalog der Araneae*, vol. 1, p. 490.

#### THERIDION QUANTUM, new species

Figures 293-294, 317

*Type.* Male type from Summit, Canal Zone, July 21-29, 1950 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace yellowish with a median dusky line and dusky sides. Sternum dusky. Legs yellowish with indistinct dusky rings. Abdomen black with a white dorsal stripe, which is narrower at both ends; some white spots on sides; venter black. Anterior median eyes one diameter apart, a radius from laterals. Posterior median eyes of female less than one diameter apart, two-thirds from laterals. Anterior median eyes of males slightly smaller than others. Posterior medians of male two-thirds diameter apart, one from laterals. Total length of female 2.2 mm. Carapace 0.91 mm. long, 0.78 mm. wide. First femur, 1.15 mm.; patella and tibia, 1.15 mm.; metatarsus, 0.91 mm.; tarsus, 0.49 mm. Second patella and tibia, 0.96 mm.; third, 0.71 mm.; fourth, 1.04 mm. Total length of male 1.6 mm. Carapace 0.78 mm. long, 0.68 mm. wide. First femur, 1.15 mm.; patella and tibia, 1.25 mm.; metatarsus, 0.98 mm.; tarsus, 0.50 mm. Second patella and tibia, 0.92 mm.; third, 0.62 mm.; fourth, 0.87 mm.

*Diagnosis.* The epigynum has a pair of light areas divided by a small lobe (Fig. 294); the palpus has a conductor of distinctive shape (Fig. 317).

*Records.* *Costa Rica:* Orosi (Picado); San José (E. Schmidt). *Canal Zone:* Summit, ♀ paratypes; Forest Reserve; Experimental Gardens (A. M. Chickering).

THERIDION MALKINI, new species  
 Figures 295-296

*Type.* Female type from Tamazunchale, San Luis Potosí, June 26, 1947 (B. Malkin), in the American Museum of Natural History.

*Description.* Carapace dusky yellow, dusker on sides. Sternum dusky yellow. Legs yellow with faint dusky rings and dusky femora. Abdomen with a median dorsal white band whose edges are scalloped and which narrows towards the spinnerets; sides with some white spots. Anterior median eyes two-thirds diameter apart, one-quarter from laterals. Posterior median eyes their radius apart, two-thirds diameter from laterals. Total length of female 2.0 mm. Carapace 0.97 mm. long, 0.91 mm. wide. First femur, 1.24 mm.; patella and tibia, 1.40 mm.; metatarsus, 1.01 mm.; tarsus, 0.52 mm. Second patella and tibia, 1.04 mm.; third, 0.78 mm.; fourth, 1.17 mm.

*Diagnosis.* The epigynum whose openings are anterior (Fig. 296) distinguishes this species from *T. quantum*.

THERIDION RUINUM, new species  
 Figure 325

*Type.* Male type from Las Ruinas de Palenque, Chiapas, July 14, 1949 (C. J. Goodnight), in the American Museum of Natural History.

*Description.* Carapace yellow with a median dusky stripe and dusky sides. Sides of sternum dusky. Legs dusky yellow. Abdomen black with a median dorsal white stripe having scalloped edges; venter without much pigment. Eyes large. Anterior medians three-quarters diameter apart, almost touching laterals. Posterior medians one-third diameter apart, one-half from laterals. Total length of male, 1.5 mm. Carapace 0.67 mm. long, 0.62 mm. wide. First femur, 1.00 mm.; patella and tibia, 1.04 mm.; metatarsus, 0.87 mm.; tarsus, 0.42 mm. Second patella and tibia, 0.85 mm.; third 0.62 mm.; fourth, 0.85 mm.

*Diagnosis.* Details of the palpus (Fig. 325) separate this species from *T. quantum*.

## THERIDION SIGNUM, new species

Figures 297-298, 332

*Type.* Male type from Boquete, Panama, July 10-25, 1939 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace dusky yellow-brown. Sternum dusky yellow. Legs yellow-brown with indistinct dusky bands on middle and ends of segments. Abdomen mottled white on black with a median dorsal white band and a series of five white spots on sides; venter with an indistinct spot behind epigastric furrow. Anterior median eyes one diameter apart less than one-fourth from laterals. Posterior medians their radius apart, less than a diameter from laterals. A female measured total length 2.2 mm. Carapace 1.0 mm. long, 0.89 mm. wide. First femur 1.33 mm.; patella and tibia, 1.44 mm.; metatarsus, 1.05 mm.; tarsus, 0.55 mm. Second patella and tibia, 1.10 mm.; third, 0.78 mm.; fourth, 1.18 mm. A male measured total length, 1.9 mm. Carapace 0.88 mm. long, 0.78 mm. wide. First femur, 1.28 mm.; patella and tibia, 1.43 mm.; metatarsus, 1.01 mm.; tarsus, 0.51 mm. Second patella and tibia, 1.10 mm.; third, 0.75 mm.; fourth, 1.01 mm.

This species is distinguished by the following characters:

*Diagnosis.* The epigynum has a small hookshaped projection (Fig. 298); the palpus has the radix enlarged, covering the conductor on the ventral side by a transparent lobe, wrapped all around the back of the bulb and terminating in a large flat projection. Embolus is small and hidden by conductor and radix (Fig. 332).

*Records. Panama:* Boquete, ♀ allotype July 10-25, 1939; ♀ paratype Aug. 4-11, 1954 (A. M. Chickering).

## THERIDION CHILAPA, new species

Figures 309-310

*Type.* Female type from Chilapa, Guerrero, Mexico, Oct. 29, 1934 (L. Schultze), in the American Museum of Natural History.

*Description.* Carapace yellow-brown. Legs yellow-brown with some dusky rings on middle and ends of distal segments. Abdomen black with a median dorsal black band bordered by a wavy white line. Some light patches on sides. Eyes subequal in size. Anterior median eyes one diameter apart, two-thirds diameter

from laterals. Posterior median eyes two-thirds diameter apart, a little more than one from laterals. Total length 2.5 mm. Carapace, 1.1 mm. long, 1.1 mm. wide. Second patella and tibia, 1.1 mm.; third, 0.9 mm.; fourth, 1.3 mm.

*Diagnosis.* The epigynum having openings in a pair of nipples facing each other and a median depression (Fig. 310) separate this species from *Theridion paidiscum*.

#### THERIDION SCHMIDTI, new species

Figure 331

*Type.* Male type from San José, Costa Rica (E. Schmidt), in the American Museum of Natural History.

*Description.* Carapace, sternum, legs yellow. Abdomen gray with a median dorsal white band whose borders are irregular. Anterior median eyes one diameter apart, less than one-fourth from laterals. Posterior median eyes their radius apart, almost their diameter from laterals. Total length of male 1.9 mm. Carapace 0.80 mm. long, 0.63 mm. wide. First femur, 1.22 mm.; patella and tibia, 1.35 mm.; metatarsus, 1.08 mm.; tarsus, 0.53 mm. Second patella and tibia, 1.03 mm.; third, 0.74 mm.; fourth, 0.93 mm.

*Diagnosis.* Details of the palpus (Fig. 331) separate this species from *T. quantum*.

#### THERIDION PAIDISCUM, new species

Figures 299-300, 329-330

*Type.* Male type from Boquete, Panama, Aug. 4-11, 1954 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace, sternum, dark dusky yellow. Legs yellow with dark dusky rings on middle and ends of segments. Abdomen mottled black with a median dorsal, white stripe, whose borders are irregular; several white spots on sides; venter without marks. Anterior median eyes one diameter apart, almost touching laterals. Posterior eyes three-quarters diameter apart. Measurement of female total length, 2.3 mm. Carapace, 1.04 mm. long, 1.00 mm. wide. First femur, 1.32 mm.; patella and tibia, 1.46 mm.; metatarsus, 1.03 mm.; tarsus, 0.57 mm. Second patella and tibia, 1.12 mm.; third, 0.85 mm.; fourth, 1.18

mm. Male total length 1.7 mm. Carapace 0.91 mm. long, 0.78 mm. wide. First femur, 1.10 mm.; patella and tibia, 1.30 mm.; metatarsus, 0.78 mm.; tarsus, 0.52 mm. Second patella and tibia, 1.00 mm.; third, 0.73 mm.; fourth, 0.98 mm.

*Diagnosis.* The epigynum (Fig. 300) has a pair of small sclerotized protuberances along the margin and a median small protuberance which distinguishes it from *T. signaculum*. The palpus (Fig. 330) resembles that of *Sphyrrotinus* species; the various sclerites have shifted to the back of the bulb and are reduced in size.

*Record.* Panama: Boquete, ♀ paratype (A. M. Chickering).

#### THERIDION SIGNACULUM, new species

Figures 301-302, 333

*Type.* Male type from Forest Reserve, Canal Zone, July 4-6, 1939 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace dusky white to dusky brown. Sternum dusky. Legs white with faint indications of rings or dusky patches on venter. Abdomen dark with a median dorsal white stripe, which is narrow on ends and has wavy sides; venter black with a white spot posterior to genital groove. Anterior median eyes less than one diameter apart, one-fourth a diameter from laterals. Posterior eyes separated by less than one diameter. The anterior median eyes of the male are larger than the others and less than their radius apart. Total length of females 1.6-2.0 mm. A female paratype measured total length 1.8 mm. Carapace 0.75 mm. long, 0.68 mm. wide. First femur, 0.91 mm.; patella and tibia, 0.95 mm.; metatarsus, 0.65 mm.; tarsus, 0.39 mm. Second patella and tibia, 0.75 mm.; third, 0.56 mm.; fourth, 0.82 mm. Total length of male 1.6 mm. Carapace 0.71 mm. long, 0.62 mm. wide. First femur, 1.00 mm.; patella and tibia, 1.05 mm.; metatarsus, 0.75 mm.; tarsus, 0.42 mm. Second patella and tibia, 0.79 mm.; third, 0.60 mm.; fourth, 0.75 mm.

*Diagnosis.* The female has an epigynum similar to *T. paidicum*, but it lacks the median protuberance (Fig. 302); the palpus of the male resembles *T. signum*; the radix, however, is smaller (Fig. 333).



*Records. Panama:* Porto Bello (A. M. Chickering). *Canal Zone:* Madden Dam; Barro Colorado Isl. (several collections); Forest Reserve, ♀, ♂ paratypes (all A. M. Chickering).

THERIDION ATLIXCO, new species  
 Figures 303-304

*Type.* Female type from Atlixco, Puebla, June 26, 1947 (L. I. Davis), in the American Museum of Natural History.

*Description.* Carapace dark gray, head region brown, reddish around eyes. Sternum black. Legs white with black spots or irregular narrow black rings. Abdomen with a median white band most distinct above spinnerets; and a white cross band on anterior half of dorsum. Venter with a black spot on each side of pedicel; a black ring around spinnerets; a wide black band from spinnerets to epigynum bearing a large white spot in center. Anterior median eyes one and one-quarter diameters apart, less than one-quarter from laterals. Posterior eyes two-thirds their diameter apart. Abdomen slightly wider than long, anterior end widest, subtriangular. Total length, 1.6 mm. Carapace 0.70 mm. long, 0.69 mm. wide. First femur, 0.91 mm.; patella and tibia, 0.99 mm.; metatarsus, 0.66 mm.; tarsus, 0.32 mm. Second patella and tibia, 0.68 mm.; third, 0.50 mm.; fourth, 0.75 mm.

*Diagnosis.* The indistinct epigynum (Fig. 304), covered by black pigment, differentiates this species from other Theridions.

THERIDION PROGUM, new species  
 Figures 305-306

*Type.* Female type from El Valle, Panama, July 1936 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace, sternum, legs dusky yellow-brown. Legs with indistinct darker rings. Abdomen black with a white stripe above spinnerets and several spots on sides. Anterior median eyes two-thirds diameter apart, almost touching laterals. Posterior median eyes one-third diameter apart, a radius from laterals. Total length 2.4 mm. Carapace 1.00 mm. long, 0.88 mm. wide. First femur, 1.32 mm.; patella and tibia, 1.40 mm.; metatarsus, 1.04 mm.; tarsus, 0.55 mm. Second patella and tibia, 1.04 mm.; third, 0.80 mm.; fourth, 1.15 mm.

*Diagnosis.* The openings of the ducts are on the ends of a swollen area on the epigynum (Fig. 306). The swollen area separates this species from *T. signaculum*.

THERIDION COLIMA, new species

Figures 277-279

*Type.* Female type from Miramar, Manzanillo, Colima, Jan. 15, 1943 (F. Bonet), in the American Museum of Natural History.

*Description.* Carapace, sternum, legs yellow. Legs dusky at joint of femur and patella. Abdomen whitish with a small dusky spot on dorsum and a dusky ring around spinnerets. Anterior median eyes one diameter apart, one-third of a diameter from laterals. Posterior median eyes one diameter apart, a radius from laterals. Total length of female 1.8 mm. Carapace 0.78 mm. long, 0.70 mm. wide. First femur, 1.14 mm.; patella and tibia, 1.12 mm.; metatarsus, 0.92 mm.; tarsus, 0.53 mm. Second patella and tibia, 0.78 mm.; third, 0.52 mm.; fourth, 0.88 mm.

The generic placement of this species is not certain. It is possible that it belongs to the genus *Achacaranea*.

*Diagnosis.* The epigynum has a slight median elevation on whose sides are openings (Figs. 278, 279). This distinguishes the species from other theridiids known.

THERIDION CLEMENS, new species

Figures 322-324

*Type.* Male type from Blue Mountains, 5-7000 ft.: Jamaica, British West Indies, Aug. 17-19, 1934 (P. J. Darlington), in the Museum of Comparative Zoology.

*Description.* Carapace, sternum, legs yellow. Abdomen with two dorsal longitudinal black bands, white in between and on sides; sometimes with series of black spots. Diameter of anterior median eyes half that of others. Anterior median eyes one and one-third diameters apart, two-thirds diameters from laterals. Posterior median eyes one diameter apart, one and one-quarter diameters from laterals. Chelicerae of female enlarged. Measurement of female 2.4 mm. total length. Carapace 0.83 mm. long, 0.78 mm. wide. First femur, 1.56 mm.; patella and tibia, 1.69

mm.; metatarsus, 1.30 mm.; tarsus, 0.57 mm. Second patella and tibia, 1.19 mm.; third, 0.78 mm.; fourth, 1.24 mm. Male 1.9 mm. total length. Carapace 0.85 mm. long, 0.60 mm. wide. First femur, 1.69 mm.; patella and tibia, 1.91 mm.; metatarsus, 1.56 mm.; tarsus, 0.60 mm. Second patella and tibia, 1.26 mm.; third, 0.78 mm.; fourth, 1.20 mm.

*Diagnosis.* The small anterior median eyes, the projecting median apophysis of the palpus (Fig. 324), and the structure of the epigynum (Fig. 323) distinguish this species from others.

*Records.* *Jamaica*: Blue Mts., 5-7000 ft., ♀ allotype, ♀, ♂ paratypes (P. J. Darlington); Hardwar Gap, Blue Mts. (many collections); N. Morces Gap, St. Andrew Par. (R. P. Bengry).

#### THERIDION TEMPUM, new species

Figures 315-316

*Type.* Female from the Forest Preserve, Panama Canal Zone, Dec. 24, 1957 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace dusky gray, darkest in eye region. Sternum dusky, lighter yellow in the middle. Endites and labium yellowish. Legs dusky gray. Abdomen yellow-gray with some white pigment spots on each side of dorsum, one black spot on each side of spinnerets. Eyes subequal in size. Anterior median eyes their diameter apart, almost touching laterals. Abdomen globular, as high as long. Posterior median eyes one diameter apart, two-thirds from laterals. Total length 2.3 mm. Carapace, 0.84 mm. long, 0.68 mm. wide. First femur, 1.04 mm.; patella and tibia, 1.04 mm.; metatarsus, 0.78 mm.; tarsus, 0.45 mm. Second patella and tibia, 0.74 mm.; third, 0.53 mm.; fourth, 0.79 mm.

*Diagnosis.* The epigynum having a slight central depression and the long connecting ducts (Fig. 315) separate this species from *Theridion plantatum*.

#### THERIDION PLANTATUM, new species

Figures 255-256

*Type.* Female holotype from Plantation, Barro Colorado Island, Panama Canal Zone, July 19, 1954 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace yellowish orange. Sternum orange. Legs yellow brown. Abdomen orange-white; posterior portion and area around spinnerets dusky; venter dusky. Anterior median eyes slightly larger than others, their diameter apart, one-quarter from laterals. Posterior eyes two-thirds diameter apart. Legs very strong. Total length of female 2.4 mm. Carapace 1.04 mm. long; 0.97 mm. wide. First femur, 1.56 mm.; patella and tibia, 1.35 mm.; metatarsus, 1.17 mm.; tarsus, 0.52 mm. Second patella and tibia, 1.04 mm.; third, 0.78 mm.; fourth, 1.24 mm.

*Diagnosis.* The unusual coloration, the epigynum and internal genitalia (Fig. 256) distinguish this species from others.

THERIDION ARMOURI, new species

Figures 259-260

*Type.* Female holotype from Armour Trail, Barro Colorado Island, Panama Canal Zone, July 17, 1954 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace orange-brown. Sternum orange. Legs dusky gray, distal segments darker. Abdomen dark gray above, reddish below. Anterior median eyes one diameter apart, almost touching laterals. Posterior eyes their diameter apart. Total length of female 2.0 mm. Carapace 0.71 mm. long. First femur, 0.88 mm.; patella and tibia, 0.98 mm.; metatarsus, 0.70 mm.; tarsus, 0.41 mm. Second patella and tibia, 0.71 mm.; third, 0.59 mm.; fourth, 0.85 mm.

The relatively high abdomen may indicate that this species belongs to *Achacaranca*.

*Diagnosis.* The epigynum (Fig. 260) has a depression. The internal genitalia (Fig. 259) distinguish this species from others with a similar epigynum.

THERIDION BRIDGESI, new species

Figures 307-308, 328

*Type.* Male holotype from Pujal, San Luis Potosí, outside cave, March 1940 (W. Bridges), in the American Museum of Natural History.

*Description.* Carapace yellowish with a median dusky band, sides dusky. Sternum dusky. Legs with dusky spots on ends

of segments. Abdomen dusky black with a median dorsal white stripe whose edges are irregular. Sides with some white spots; venter with a white spot. Anterior median eyes two-thirds diameter apart, almost touching laterals; posterior eyes their radius apart. Total length of female 2.0 mm. Carapace 0.89 mm. long; 0.79 mm. wide. First femur, 1.30 mm.; patella and tibia, 1.37 mm.; metatarsus, 1.04 mm.; tarsus, 0.52 mm. Second patella and tibia, 1.12 mm.; third, 0.85 mm.; fourth, 1.17 mm. Total length of male 1.6 mm. Carapace 0.78 mm. long, 0.69 mm. wide.

*Diagnosis.* The epigynum which is heavily pigmented and has two dark spots on the anterior end of a lightly sclerotized plate (Fig. 308) and the palpus which bears a thorn (conductor) on the tegulum (Fig. 328) differentiates this species from others. A radix and median apophysis is present.

*Records.* *San Luis Potosí:* Pujal, ♀, ♂ paratypes (W. Bridges); Tamazunchale (W. J. Gertsch).

#### THERIDION MUSAWAS, new species

Figure 327

*Type.* Male type from Musawas, Río Waspuc, Niaragua, Oct. 10-31, 1955 (B. Malkin), in the American Museum of Natural History.

*Description.* Carapace dusky yellow, darker in middle and near margins. Sternum, legs dusky yellow. Abdomen dark gray to black with indications of a median, dorsal white band. Anterior median eyes three-quarters diameter apart, less than one-quarter from laterals. Posterior median eyes one-third diameter apart, two-thirds from laterals. Posterior muscle scars on abdomen sclerotized. Total length of male 1.6 mm. Carapace, 0.80 mm. long, 0.58 mm. wide. First femur, 1.05 mm.; patella and tibia, 1.17 mm.; metatarsus, 0.78 mm.; tarsus, 0.36 mm. Second patella and tibia, 0.88 mm.; third, 0.65 mm.; fourth, 0.88 mm.

*Diagnosis.* Details of the palpus (Fig. 327) separate this species from *T. bridgesi*.

#### THERIDION RINCONENSE, new species

Figures 261-262

*Type.* Female type from Rincon, Chiapas, April 6, 1953 (L. I. Davis), in the American Museum of Natural History.

*Description.* Carapace yellow, slightly dusky in center. Sternum, legs yellow. Legs with indications of bands on venter. Abdomen spotted black, with a white line above spinnerets; venter yellowish. Anterior median eyes their diameter apart, one-fourth from laterals. Posterior median eyes their radius apart, two-thirds from laterals. Total length of female 2.5 mm. Carapace 1.04 mm. long, 0.91 mm. wide. First femur, 1.42 mm.; patella and tibia, 1.56 mm.; metatarsus, 1.05 mm.; tarsus, 0.68 mm. Second patella and tibia, 1.17 mm., third, 0.89 mm.; fourth, 1.20 mm.

*Diagnosis.* The epigynum (Fig. 262) differentiates this species from other *Theridion*.

#### Theridion panum, new species

Figures 289-290

*Type.* Female type from El Voleán. Chiriquí, Panama. March 7, 1936 (W. J. Gertsch), in the American Museum of Natural History.

*Description.* Carapace yellow with dusky head and a black line around margin. Legs yellow with indications of rings. Abdomen black with a median dorsal white band having scalloped edges and narrowing at the posterior; a white band around anterior edge; some white pigment on each side of pedicel on venter. Anterior median eyes slightly larger than others, their diameter apart, one-fourth their diameter from laterals. Posterior eyes one diameter apart. Total length of female 2.6 mm. Carapace 1.04 mm. long, 0.78 mm. wide. First femur, 1.87 mm.; patella and tibia, 2.05 mm.; metatarsus, 1.60 mm.; tarsus, 0.73 mm. Second patella and tibia, 1.42 mm.; third, 0.91 mm.; fourth, 1.46 mm.

*Diagnosis.* The structure of the very small epigynum (Fig. 290) separates this species from *T. moctezuma*.

#### Theridion quemadum, new species

Figures 257-258

*Type.* Female type from Cruz Quemada, 2000 m., nr. Amatenango, Chiapas, July 24, 1950 (C. and M. Goodnight), in the American Museum of Natural History.

*Description.* Carapace yellow, head dusky, border with a black line. Sternum dusky yellow. Legs yellow with ends of segments dusky. Abdomen black with lighter patches on sides of dorsum and a light stripe above spinnerets. Anterior median eyes slightly smaller than others, their diameter apart, one-fourth from laterals. Posterior eyes two-thirds diameter apart. Total length 2.9 mm. Carapace 1.15 mm. long, 1.04 mm. wide. First femur, 1.71 mm.; patella and tibia, 1.89 mm.; metatarsus, 1.41 mm.; tarsus, 0.65 mm. Second patella and tibia, 1.28 mm.; third, 0.94 mm.; fourth, 1.49 mm.

*Diagnosis.* The epigynum (Fig. 258) distinguishes this species from *T. morulum*.

### SPHYROTINUS Simon

*Sphyrotinus* Simon, 1894, Proc. Zool. Soc. London, p. 524. Type species by monotypy: *S. luculentus* Simon.

*Hypobares* Simon, 1894, *op. cit.*, p. 552. Type species *H. unisignatus* Simon by original designation and monotypy.

*Phillo* Simon, 1894, *op. cit.*, p. 552. Type species *P. subtilis* Simon by original designation and monotypy.

*Hubba* O. P. Cambridge, 1897, Biologia Centrali Americana, Araneidea, vol. 1, p. 231. Type species by monotypy *H. insignis* O. P. Cambridge.

*Thonastica* Simon, 1909, Bull. Biol. France et Belgique, vol. 42, p. 92. Type species *T. praemollis* Simon by original designation and monotypy.

*Garricola* Chamberlin, 1916, Bull. Mus. Comp. Zool., vol. 60, p. 233. Type species by original designation and monotypy *G. sanctus* Chamberlin.

*Paidisca* Bishop and Crosby, 1926, Jour. Elisha Mitchell Sci. Soc., vol. 41, p. 178. Type species by original designation and monotypy *Histagonia marxi* Crosby.

*Spelobion* Chamberlin and Ivie, 1938, Publ. Carnegie Inst. Washington, no. 491, p. 133. Type species by original designation and monotypy *S. spukilum* Chamberlin and Ivie (= *Sphyrotinus luculentus* Simon).

*Thymoella* Bryant, 1938, Bull. Mus. Comp. Zool., vol. 100, p. 377. Type species by original designation *T. banksi* Bryant.

*Brontosauriella* Bristowe, 1938, Ann. Mag. Nat. Hist., ser. 11, vol. 2, p. 72. Type species *B. mellolcitaoni* Bristowe by monotypy.

The members of this genus appear similar. The cephalothorax with appendages are brown and the abdomen, which may have dusky marks, is whitish. The legs are shorter than those of *Theridion*. The carapace may be modified in males like that of erigonids, sometimes the first legs are enlarged. In the northern



part of the region the species are often heavily sclerotized. Although a distinct group, this genus grades into *Theridion* and the placement of some species may be arbitrary. Both genera lack a colulus and have a relatively complicated palpus.

Judging by the collections examined, individual species may be extremely abundant locally and can be collected by the hundreds in litter or detritus. Only a few miles off, one or several other species may be found similarly abundant. Unfortunately the collections examined only rarely had detailed ecological notes.

Geographic variation of most species is so great that individual specimens from less explored areas are difficult to place, and it is often difficult to decide if a collection is a new species or a form of one previously described.

*Paidisca simplex* Bryant, 1940, Bull. Mus. Comp. Zool., vol. 86, p. 301, fig. 66, ♀ has a large colulus and is probably a linyphiid.

#### SPHYROTINUS LUCULENTUS Simon

Figures 334-338

*Sphyrotinus luculentus* Simon, 1894, Proc. Zool. Soc. London, p. 524. (♀, ♂ syntypes from St. Vincent Island, Lesser Antilles, in the British Museum, Natural History). Roewer, 1942, Katalog der Araneae, vol. 1, p. 459.

*Theonoe americana* Simon, 1897, *op. cit.*, p. 864. (♀ type from St. Vincent Isl., Lesser Antilles, in the British Museum, Natural History). NEW SYNONYMY.

?*Spelobion spukilum* Chamberlin and Ivie, 1938, Publ. Carnegie Inst. Washington, no. 491, p. 133, fig. 11, ♀ (♀ type from Spukil Cave, Calcehtoc, Yucatan, in the University of Utah collection).

*Description.* Diameter of anterior median eyes one-half that of others. Anterior median eyes almost one diameter apart. Posterior eyes separated by one-third their diameter. Abdomen with an indistinct dark line on dorsum. The specimens from St. Vincent Isl. examined lacked dark eye rings. The male has first femur swollen. Total length of female 1.2 mm. Carapace 0.53 mm. long, 0.49 mm. wide. First femur, 0.65 mm.; patella and tibia, 0.71 mm.; metatarsus, 0.42 mm.; tarsus, 0.29 mm. Second patella and tibia, 0.53 mm.; third, 0.39 mm.; fourth, 0.57 mm. Total length of male 1.0 mm. Carapace 0.59 mm. long, 0.52 mm. wide. First femur, 0.78 mm. (0.18 mm. wide); patella and tibia, 0.78 mm.; metatarsus, 0.45 mm.; tarsus, 0.23 mm. Second patella and tibia, 0.55 mm.; third, 0.39 mm.; fourth, 0.52 mm.

*Comment.* The epigynum (Fig. 335) is much like that of *S. guanicac*; however, the females are smaller. Several specimens from Panama are probably this species although they have black eye rings, the femur is less swollen, and there are details in the difficult-to-study palpus that differ. The abdomen of some specimens has a dusky V-shaped mark, two lines converging towards the spinnerets. Otherwise, females may be very difficult to separate from those of *S. guanicac*. The drawings of the epigynum and palpus (Fig. 336) were made from type specimens.

*Records.* *Chiapas:* Finca Cuauhtémoc, nr. Cacahoatán, 3000 ft., ♂ (C. and M. Goodnight). *Canal Zone:* Barro Colorado Island, ♀, ♂ (A. M. Chickering). *St. Vincent Isl.* (Simon, 1894).

SPHYROTINUS CHICKERINGI, new species

Figures 339-341

*Type.* Male holotype, from Barro Colorado Island, Canal Zone, Aug. 22, 1954 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Anterior median eyes slightly smaller than others, three-quarters diameter apart, their radius from laterals. Posterior median eyes about their radius apart, less than one diameter from laterals. Total length of females 1.3-1.5 mm. A female measured total length 1.3 mm. Carapace 0.62 mm. long, 0.59 mm. wide. First femur, 0.75 mm.; patella and tibia, 0.75 mm.; metatarsus, 0.43 mm.; tarsus, 0.36 mm. Second patella and tibia, 0.55 mm.; third, 0.49 mm.; fourth, 0.67 mm. Total length of males 1.2-1.5 mm. A male measured total length 1.2 mm. Carapace 0.55 mm. long; 0.52 mm. wide. First femur, 0.83 mm.; patella and tibia, 0.81 mm.; metatarsus, 0.53 mm.; tarsus, 0.35 mm. Second patella and tibia 0.65 mm.; third, 0.50 mm.; fourth, 0.67 mm.

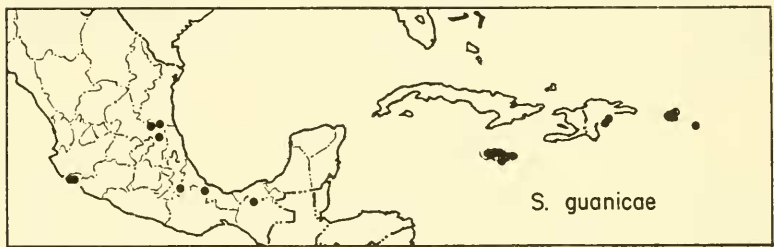
*Diagnosis.* The flask-shaped seminal receptacles, visible through the epigynum (Fig. 340), and the relatively indistinct palpus (Fig. 341) separate this species from all others in the genus.

*Records.* *Canal Zone:* Barro Colorado Island, ♀ allotype, ♀, ♂ paratypes (very many collections); Experimental Gar-

dens; Chilibre; Forest Reserve; Corozal; Gamboa; across canal at Pedro Miguel; Madden Dam; 4 m. beyond Pedro Miguel; 3 mi. N. of Pedro Miguel; Summit; Frijoles; Madden Dam N. of Paraiso (all A. M. Chickering).

*SPHYROTINUS GUANICAE* (Petrunkevitch), new combination  
Figures 345-349; Map 6

*Theridion guanicæ* Petrunkevitch, 1930, Trans. Connecticut Acad. Sci., vol. 30, p. 208, figs. 57, 58, ♀ (2 ♀ syntypes from Guanica, Porto Rico, probably lost).



Map 6. Distribution of *Sphyrrotinus guanicæ* (Petrunkevitch).

*Description.* Abdomen gray with three darker gray dorsal stripes; a gray ring around spinnerets. Anterior median eyes less than their diameter apart, one-quarter their diameter from laterals. Posterior median eyes three-quarters diameter apart, their radius from laterals. Anterior median eyes slightly smaller than others. Total length of females 1.3-1.7 mm. Total length of one from Jamaica 1.3 mm. Carapace 0.60 mm. long, 0.53 mm. wide. First femur, 0.56 mm.; patella and tibia, 0.62 mm.; metatarsus, 0.37 mm.; tarsus, 0.34 mm. Second patella and tibia, 0.49 mm.; third, 0.44 mm.; fourth, 0.59 mm. Total length of a male from Jamaica 1.2 mm. Carapace 0.60 mm. long, 0.53 mm. wide. First femur, 0.62 mm.; patella and tibia, 0.61 mm.; metatarsus, 0.39 mm.; tarsus, 0.34 mm. Second patella and tibia, 0.56 mm.; third, 0.44 mm.; fourth, 0.61 mm. The seminal receptacles of the females may touch or be separated by a short distance.

*Diagnosis.* The females are slightly larger than those of the rare *S. luculentus*, and the connecting duct bends before entering

the seminal receptacles (Figs. 345, 346). The loop of the duct in the palpus (Figs. 348, 349) separates the males from other species.

*Natural History.* Found in litter and under stones.

*Distribution.* Mexico and Greater Antilles, except Cuba.

*Records.* *Tamaulipas*: 2 mi. E. of Nuevo Morelos (L. I. Davis). *Sau Luis Potosí*: Ciudad del Maíz (C. J. Goodnight); Tamazunchale (F. Bonet). *Colima*: Potrero Grande (F. Bonet); Miramar, Manzanillo (F. Bonet). *Veraeruz*: Tierra Blanca (C. and M. Goodnight). *Puebla*: Tehuacán (W. J. Gertsch, V. Roth). *Tabasco*: Teapa (C. and M. Goodnight). *Jamaica*: Very common in all parts of the island. *Dominican Republic*: Ciudad Trujillo (A. M. Nadler); Boca Chica (A. M. Nadler). *Puerto Rico*: Guanica, types (A. Petrunkevitch); Maricao Forest, 2500 ft. (P. J. Darlington); Mayagüez (A. M. Nadler); Río Piedras (A. M. Nadler); Cidra, Treasure Isl. (A. M. Nadler); Loiza (A. S. Mills). *Virgin Islands*: St. Croix (H. Beatty).

SPHYROTINUS ILLUDENS (Gertsch and Mirdaik), new combination  
Figures 342-344

*Paidisca illudens*, Levi, 1957, Bull. Amer. Mus. Nat. Hist., vol. 112, p. 110, figs. 396, 399, 414, 415, ♀, ♂, map 40.

The specimens from Central America differ from those from Texas in being slightly smaller (females: 1.2-1.4 mm.; males: 1.3 mm.) than northern specimens, and by details of the genitalia: the conductor is less distinct in the southern specimens, the course of the connecting ducts of the female differs, but they open near the posterior margin. All males have a groove along the clypeus, and the palpal duct differs from that of males of *S. guanicac*.

*Comments.* It is very doubtful that this is all one species. However, no names were given nor descriptions made (except for *S. verus* below), since it would be doubtful that the descriptions based on individual females of a probably highly variable species would be recognized again. This species or species group has to be studied again as soon as larger series are available from Mexico.

*Records of doubtful females:* *Veraeruz*: Papantla, Oct. 12, 1947, 2 ♀, one with longer legs and slightly different connecting

ducts than the other (H. Wagner). *Chiapas*: Palenque Ruins, July 12, 1949, 1 ♀ collected with Berlese funnel (C. J. Goodnight). *Costa Rica*: 1 ♀.

*Records from Central America.* (Genitalia illustrated by Figs. 342-344.) *Costa Rica*: San José (E. Schmidt). *Panama*: Arraiján (A. M. Chickering). *Canal Zone*: Balboa; Experimental Gardens (many collections); Summit; across canal from Pedro Miguel; 3 mi. N. of Pedro Miguel; Pedro Miguel; Corozal; Miraflores Lock (all A. M. Chickering).

SPHYROTINUS VERUS, new species

Figures 357-359

*Type.* Male type from Santa Cruz, Veracruz, in the American Museum of Natural History.

*Description.* Carapace (Figs. 357, 358) modified like *S. illudens*. Palpus quite large. Total length of male 2.1 mm. Carapace 0.68 mm. long, 0.61 mm. wide. First femur, 0.85 mm.; patella and tibia, 0.80 mm.; metatarsus, 0.57 mm.; tarsus, 0.39 mm. Second patella and tibia, 0.66 mm.; third, 0.52 mm.; fourth, 0.68 mm.

*Diagnosis.* Details of the palpus (Fig. 359) differentiate this species from *S. illudens*.

SPHYROTINUS EXPULSUS (Gertsch and Mulaik), new combination

Figures 365-366

*Paidisca expulsa*, Levi, 1957, Bull. Amer. Mus. Nat. Hist., vol. 112, p. 109, figs. 400, 416, 417, ♀, ♂, map 39.

A female with a black head portion of the carapace and an epigynum with the posterior lip of the depression close to the margin and projecting (Fig. 366), from Soledad, Oriente, Cuba, Aug. 1-11, 1934 (P. J. Darlington) may be this species. A male from Morant Cays, Jamaica, June 1950 (C. B. Lewis), probably belongs to this species. This male has the whole carapace brown. The distribution of *S. expulsa* covers the southern United States south to Chiapas.

SPHYROTINUS DELICATULUS, new species

Figures 360-362

*Type.* Male holotype from Barro Colorado Island, Canal Zone, Aug. 21, 1954 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Anterior median eyes slightly smaller than others, one and one-half diameters apart, one-half their diameter from laterals. Posterior median eyes slightly more than one diameter apart, one diameter from laterals. A female measured total length 1.2 mm. Carapace 0.52 mm. long, 0.47 mm. wide. First femur 0.59 mm.; patella and tibia, 0.59 mm.; metatarsus, 0.34 mm.; tarsus, 0.29 mm. Second patella and tibia, 0.48 mm.; third, 0.36 mm.; fourth, 0.53 mm. A male measured total length 1.2 mm. Carapace 0.55 mm. long, 0.48 mm. wide. First femur, 0.60 mm.; patella and tibia, 0.58 mm.; metatarsus, 0.38 mm.; tarsus, 0.29 mm. Second patella and tibia, 0.47 mm.; third, 0.39 mm.; fourth, 0.55 mm.

*Diagnosis.* The genitalia (Figs. 360-362) distinguish this species from *S. expulsa*.

*Natural History.* This species has been found in hay and debris.

*Records.* *Guccero:* Colotlipa (F. Bonet); Acahuizotla (F. Bonet). *Canal Zone:* Barro Colorado Island, ♀ allotype, ♀, ♂ paratypes (many collections); Chilibre; Corozal; Balboa; Experimental Gardens; Fort Clayton; Summit; Gatun; France Field; Gamboa; across canal from Pedro Miguel; 3 mi. N. of Pedro Miguel (all A. M. Chickering); Old Panama (C. D. Michener).

#### SPHYROTINUS MADERAE (Gertsch and Archer), new combination Figures 350-356

*Paidisca maderae*, Levi, 1957, Bull. Amer. Mus. Nat. Hist., vol. 112, p. 106, figs. 397, 398, 420, 421, ♀, ♂; map 37.

Genitalia of specimens from Panama differ considerably from those of the southwestern United States; however, intermediates have been found in Mexico. Thus the specimens examined may all belong to one species. A palpus of a male from every collection is illustrated (Figs. 350-354). The carapace is highest in males from Arizona, of near normal shape in those from Panama; the carapace of males from Mexico is intermediate in height. The seminal receptacles are closer to the border in females from Panama and Mexico (Fig. 356), than in those from Arizona.

*Distribution.* Arizona to Panama.

*Records.* *Nuevo León*: 28 mi. N. of Monterrey (L. I. Davis). *Veraacruz*: Veraacruz (C. J. Goodnight); Tierra Blanca (C. and M. Goodnight). *Guerrero*: Acapulco (L. I. Davis). *Costa Rica*: San José (E. Schmidt). *Canal Zone*: Experimental Gardens; Gamboa; Summit; Pedro Miguel; Corozal (A. M. Chickering).

SPHYROTINUS MARXI (Crosby), new combination  
 Figures 363-364

*Paidisca marxi*, Levi, 1957, Bull. Amer. Mus. Nat. Hist., vol. 112, p. 111, figs. 393-395, 401, 418-419, ♀, ♂, map 41.

The ducts of the southernmost females of this heavily sclerotized species have a slightly different course (Fig. 364).

*Distribution.* Connecticut, southeastern United States, south to Chiapas.

*Additional records.* *Puebla*: Tehuacán (W. J. Gertsch and V. Roth). *Chiapas*: Unión Juárez (C. and M. Goodnight).

SPHYROTINUS CHIAPENSIS, new species  
 Figures 367-368

*Type.* Female type from San Cristóbal, Chiapas, July 21, 1950 (C. and M. Goodnight), in the American Museum of Natural History.

*Description.* Anterior eyes slightly smaller than others, their diameter apart, their radius from laterals. Posterior eyes their diameter apart. Total length of female 1.4 mm. Carapace 0.69 mm. long, 0.65 mm. wide. First femur, 0.78 mm.; patella and tibia, 0.75 mm.; metatarsus, 0.50 mm.; tarsus, 0.35 mm. Second patella and tibia, 0.62 mm.; third, 0.52 mm.; fourth, 0.66 mm.

*Diagnosis.* The epigynum having the openings in two dark spots (Fig. 368) and the winding connecting ducts (Fig. 367) differentiate this species from *S. notabilis*.

*Record.* *Chiapas*: San Cristóbal, ♀ paratype (C. and M. Goodnight).

SPHYROTINUS BONETI, new species  
 Figures 369-370

*Type.* Female type from Atoyac, Veracruz, Mexico, Nov. 12, 1941 (F. Bonet), in the American Museum of Natural History.



*Description.* Color very light. Diameter of anterior median eyes, half that of others. Anterior median eyes their diameter apart, one-third diameter from laterals. Posterior median eyes one diameter apart, a radius from laterals. The duct of the genitalia (Fig. 369) is difficult to discern. Total length of female 1.2 mm. Carapace 0.45 mm. long, 0.43 mm. wide. First femur, 0.44 mm.; patella and tibia, 0.50 mm.; metatarsus, 0.26 mm.; tarsus, 0.27 mm. Second patella and tibia, 0.40 mm.; third, 0.35 mm.; fourth 0.52 mm.

The generic placement of this species is uncertain.

*Diagnosis.* This species differs from other *Sphyrotinus* by having relatively long fourth legs, by having the tarsi longer than the metatarsi, and by the structure of the epigynum (Fig. 370).

*Record.* Veracruz. Atoyac, ♀ paratype (F. Bonet).

#### SPHYROTINUS ORILLA, new species

Figures 383-384

*Type.* Male type from Orilla, Río Armería. Tecomán, Colima. Jan. 18, 1943 (F. Bonet), in the American Museum of Natural History.

*Description.* Anterior median eyes three-quarters diameter apart, their radius from laterals. Posterior eyes separated by a diameter. Abdomen with a dorsal scutum (Fig. 384). Total length of male 1.5 mm. Carapace, 0.72 mm. long, 0.64 mm. wide. First femur, 0.67 mm.; patella and tibia, 0.66 mm.; metatarsus, 0.39 mm.; tarsus, 0.29 mm. Second patella and tibia, 0.53 mm.; third, 0.42 mm.; fourth, 0.60 mm.

*Diagnosis.* This species differs from *S. illudens* in lacking a modified clypeus, in having a dorsal and ventral scutum connected (Fig. 384), and in the shape of the visible ducts of the palpus (Fig. 383).

#### SPHYROTINUS CORUS, new species

Figures 373-374

*Type.* Female type from Las Ruinas de Palenque, Chiapas, July 1948 (C. and M. Goodnight), in the American Museum of Natural History.

*Description.* Abdomen black. Anterior median eyes their diameter apart, one-quarter from laterals. Posterior eyes their diameter apart. Total length of female 1.1 mm. Carapace 0.52 mm. long, 0.45 mm. wide. First femur, 0.52 mm.; patella and tibia, 0.50 mm.; metatarsus, 0.30 mm.; tarsus, 0.25 mm. Second patella and tibia, 0.39 mm.; third, 0.32 mm.; fourth, 0.43 mm.

*Diagnosis.* The long connecting ducts (Fig. 373) of the female genitalia separate this species from other species.

#### SPHYROTINUS BRADTI, new species

Figures 371-372

*Type.* Female type from Torrecillas, Chihuahua, 6900 ft., Aug. 17, 1947 (G. M. Bradt), in the American Museum of Natural History.

*Description.* Carapace, sternum, legs yellow; abdomen whitish. Anterior median eyes smaller than others, two diameters apart, three-fourths from laterals. Posterior median eyes slightly more than a diameter apart. Total length of female 1.3 mm. Carapace 0.65 mm. long, 0.58 mm. wide. First femur, 0.71 mm.; patella and tibia, 0.85 mm.; metatarsus, 0.51 mm.; tarsus, 0.38 mm. Second patella and tibia, 0.65 mm.; third, 0.52 mm.; fourth, 0.78 mm.

*Diagnosis.* The epigynum has the openings in the center of a slight swelling (Fig. 372). The ducts are short and thick (Fig. 371). The genitalia as well as the small eyes separate this species from others.

#### SPHYROTINUS CONFRATERNUS (Banks)

Figure 382

*Theridium confraternus* Banks, 1898, Proc. California Acad. Sci., 3rd. ser., vol. 1, p. 236, pl. 14, fig. 11, ♂ (♂ type from Tepic, Mexico, destroyed). Roewer, 1942, Katalog der Araneae, vol. 1, p. 491.

*Description.* Anterior median eyes slightly larger than others, three-quarters their diameter apart, almost touching laterals. Posterior eyes two-thirds their diameter apart. A male measured total length 1.4 mm. Carapace 0.71 mm. long, 0.62 mm. wide. First femur, 0.71 mm.; patella and tibia, 0.75 mm.; metatarsus, 0.56 mm.; tarsus, 0.36 mm. Second patella and tibia, 0.65 mm.; third, 0.55 mm.; fourth, 0.65 mm.

*Diagnosis.* The notch in the conductor of the palpus (Fig. 382) distinguishes this species from other *Sphyrotinus*.

*Comments.* Although Banks' description is inadequate and the type has been lost, the crude illustration shows a looping duet and a dark conductor, both characteristics of the species on hand. While no other species of *Sphyrotinus* has been reported from Tepic, this species has been collected from the vicinity of the type locality.

*Records.* *Nayarit*: 25 km. S. of Tepic (B. Malkin). *Canal Zone*: Barro Colorado Island; Experimental Gardens; Chilibre; Summit; Ft. Sherman (all A. M. Chickering).

#### SPHYROTINUS RESERVATUS, new species

Figures 375-376

*Type.* Female holotype from Forest Reserve, Canal Zone, Aug. 10-12, 1939 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Anterior median eyes slightly smaller than others, one and one-quarter diameters apart, almost touching laterals. Posterior medians three-quarters diameter apart, almost touching laterals. Total length 1.3 mm. Carapace 0.60 mm. long, 0.53 mm. wide. First femur, 0.86 mm.; patella and tibia, 0.78 mm.; metatarsus, 0.52 mm.; tarsus, 0.36 mm. Second patella and tibia, 0.62 mm.; third, 0.43 mm.; fourth, 0.62 mm.

*Diagnosis.* The posterior median eyes almost touching laterals and the epigynum (Fig. 376) differentiate this species from other *Sphyrotinus*.

#### SPHYROTINUS INDICATUS (Banks), new combination

Figures 377-381

*Theridion indicatum* Banks, 1929, Bull. Mus. Comp. Zool., vol. 69, p. 84, pl. 2, fig. 19, pl. 3, fig. 48, ♂ (♂ type from Barro Colorado, in the Museum of Comparative Zoology). Roewer, 1942, Katalog der Araneae, vol. 1, p. 494.

*Description.* Anterior median eyes their diameter apart in female, less than one diameter from laterals; posterior eyes their diameter apart. Carapace of male illustrated by Figures 379, 380. Legs relatively long. A female measured total length 1.2 mm. Carapace 0.52 mm. long, 0.52 mm. wide. First femur, 1.08

mm.; patella and tibia, 0.95 mm.; metatarsus, 0.69 mm.; tarsus, 0.47 mm. Second patella and tibia, 0.75 mm.; third, 0.59 mm.; fourth, 0.80 mm. A male measured total length 1.4 mm. Carapace 0.80 mm. long, 0.52 mm. wide. First femur, 1.24 mm.; patella and tibia, 1.12 mm.; metatarsus, 0.82 mm.; tarsus, 0.44 mm. Second patella and tibia, 0.89 mm.; third, 0.66 mm.; fourth, 0.95 mm.

*Records. Nicaragua:* Musawas; Río Waspue (B. Malkin). *Panama:* El Valle (A. M. Chickering). *Canal Zone:* Barro Colorado Island (very many collections); Forest Reserve (all A. M. Chickering).

SPHYROTINUS STYLIFRONS (Simon), new combination  
Figures 385-389

*Theridion stylifrons* Simon, 1894, Proc. Zool. Soc. London, p. 523, fig. 4, ♂ (♀, ♂ syntypes from St. Vincent Island, in the British Museum, Natural History). Roewer, 1942, Katalog der Araneae, vol. 1, p. 498.

*Description.* Anterior median eyes of female one diameter apart, almost touching laterals. Posterior median eyes their radius apart, two-thirds their diameter from laterals. Carapace and eye arrangement of male illustrated by Figures 385, 386. Epigynum showing two small black spots some distance from the margin. Total length of females 0.9-1.3 mm. A female from Canal Zone measured total length 1.3 mm. Carapace 0.52 mm long, 0.45 mm. wide. First femur, 0.65 mm.; patella and tibia, 0.62 mm.; metatarsus, 0.43 mm.; tarsus, 0.30 mm. Second patella and tibia, 0.50 mm.; third, 0.36 mm.; fourth, 0.52 mm. A male from Canal Zone measured total length 1.4 mm. Carapace 1.02 mm long, 0.49 mm. wide. First femur, 0.71 mm.; patella and tibia, 0.70 mm.; metatarsus, 0.48 mm.; tarsus, 0.31 mm. Second patella and tibia, 0.52 mm.; third, 0.40 mm.; fourth, 0.55 mm.

*Comments.* A male and female syntype were examined.

*Records. Panama:* Arraiján (A. M. Chickering). *Canal Zone:* Balboa; Barro Colorado Island (many collections); Forest Reserve; Experimental Gardens; Chiva Road nr. Pedro Miguel; Ft. Sherman; Madden Dam; Summit (all A. M. Chickering). *Venezuela:* (Simon, 1894).

SPHYROTINUS BANKSI (Bryant), new combination  
 Figures 398-400

*Thymoella banksi* Bryant, 1948, Bull. Mus. Comp. Zool., vol. 100, p. 378, figs. 58, 62, 65, 66, ♂; not figs. 59, 64, ♀ (♂ holotype from Loma Rucilla Mts. 5000-8000 ft. Cordillera Central, Dominican Republic, in the Museum of Comparative Zoology).

*Comments.* The female allotype has a large colulus and is a linyphiid, not a theridiid.

SPHYROTINUS PIARCO, new species  
 Figures 390-394

*Type.* Male holotype, from Piareo, Trinidad, Jan. 3-6, 1955 (A. M. Nadler), in the American Museum of Natural History.

*Description.* Anterior median eyes slightly larger than others; in female one and one-quarter diameters apart, their radius from laterals; posterior median eyes one and one-half diameters apart, one diameter from laterals. Carapace of male modified (Figs. 392-393). Total length of female 1.4 mm. Carapace 0.65 mm. long, 0.53 mm. wide. First femur, 0.75 mm.; patella and tibia, 0.68 mm.; metatarsus, 0.50 mm.; tarsus, 0.36 mm. Second patella and tibia, 0.53 mm.; third, 0.40 mm.; fourth, 0.62 mm. Total length of male 1.5 mm. Carapace 0.82 mm. long, 0.53 mm. wide. First femur, 0.74 mm.; patella and tibia, 0.66 mm.; metatarsus, 0.50 mm.; tarsus, 0.36 mm. Second patella and tibia, 0.61 mm.; third, 0.43 mm.; fourth, 0.64 mm.

*Diagnosis.* The genitalia (Figs. 391, 394) distinguish this species from *S. simla*.

*Records.* Lesser Antilles: Trinidad: nr. Port of Spain, 1913, ♀ (R. Thaxter); Piareo, Jan. 3-6, 1955, ♀ (A. M. Nadler).

SPHYROTINUS SIMLA, new species  
 Figures 401-403

*Type.* Male holotype from Simla, near Ariua, Trinidad, Dec. 29-30, 1954 (A. M. Nadler), in the American Museum of Natural History.

*Description.* Modified carapace illustrated by Figures 401-402. Total length 1.6 mm. Carapace 0.90 mm long, 0.62 mm. wide. First femur, 0.78 mm.; patella and tibia, 0.80 mm.; metatarsus,

0.50 mm.; tarsus, 0.36 mm. Second patella and tibia, 0.65 mm.; third, 0.50 mm.; fourth, 0.66 mm.

*Diagnosis.* The genitalia (Fig. 403) distinguish this species from *S. piarco*.

*Comment.* The long connecting canals of the female collected with *S. piarco* might suggest that it is actually the female of *S. simla* which has a long embolus.

*Distribution.* Known only from type specimen collected at Trinidad.

#### SPHYROTINUS MATACHIC, new species

Figures 395-397

*Type.* Male type from Matáchic, Chihuahua, July 6, 1947 (W. J. Gertsch), in the American Museum of Natural History.

*Description.* Carapace modified (Figs. 395, 396). Abdomen with a dorsal scutum and a separate ventral scutum having the opening for the pedicel almost in the center; a sclerotic ring around spinnerets; several sclerotic spots on each side and setae from small sclerotic spots. Total length 1.2 mm. Carapace 0.65 mm. long, 0.55 mm. wide. First femur, 0.52 mm.; patella and tibia, 0.55 mm.; metatarsus, 0.28 mm.; tarsus, 0.28 mm. Second patella and tibia, 0.40 mm.; third, 0.36 mm.; fourth, 0.52 mm.

*Diagnosis.* The modified carapace, heavily sclerotized body and the palpus (Fig. 397) distinguish this species from others.

#### SPHYROTINUS INSIGNIS (O. P. Cambridge), new combination

Figures 404-410

*Hubba insignis* O. P. Cambridge, 1897, *Biologia Centrali Americana*, Araneidea, vol. 1, p. 231, pl. 30, fig. 4, ♂ (♂ type from Senahu, Guatemala, probably lost). Bonnet, 1957, *Bibliographia Araneorum*, vol. 3, p. 2236.

*Theridion insigne*, Roewer, 1942, *Katalog der Araneae*, vol. 1, p. 494.

*Description.* Anterior median eyes slightly smaller than others, two and one-half diameters apart in female, their radius from laterals; posterior median eyes one diameter apart, two-thirds of one from laterals. Male carapace modified (Figs. 406, 407). A female measured total length, 1.3 mm. Carapace 0.57 mm. long, 0.55 mm. wide. First femur, 0.80 mm.; patella and tibia, 0.78 mm.; metatarsus, 0.59 mm.; tarsus, 0.37 mm. Second

patella and tibia, 0.65 mm.; third, 0.45 mm.; fourth, 0.78 mm. A male measured total length 1.3 mm. Carapace 0.73 mm. long, 0.56 mm. wide. First femur, 0.87 mm.; patella and tibia, 0.87 mm.; metatarsus, 0.65 mm.; tarsus, 0.37 mm. Second patella and tibia, 0.65 mm.; third, 0.46 mm.; fourth, 0.48 mm.

*Comments.* The vial containing the type, in the British Museum (Natural History), was also found to contain specimens which belonged to another species. Apparently F. P. Cambridge examined the latter and decided that this species is a linyphiid.

*Natural History.* This species has been collected with Berlese funnels.

*Records. Canal Zone:* Barro Colorado Island (many collections); Forest Reserve (A. M. Chickering).

#### SPHYROTINUS NOTABILIS, new species

Figures 411-416

*Type.* Male type from Summit, Canal Zone, 7-10 July 1950 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Fourth leg with dusky lines on each side; abdomen with four dusky areas on dorsum, one pair anterior, one posterior. Anterior median eyes half the diameter of others, two and one-half diameters apart in female, their radius from laterals; posterior median eyes their diameter apart, two-thirds their diameter from laterals. Carapace of male modified (Figs. 413, 414). A female measured total length 1.3 mm.; carapace 0.57 mm. long, 0.52 mm. wide. First femur, 0.80 mm.; patella and tibia, 0.83 mm.; metatarsus, 0.62 mm.; tarsus, 0.35 mm. Second patella and tibia, 0.62 mm.; third, 0.47 mm.; fourth, 0.73 mm. A male measured total length 1.3 mm. Carapace 0.70 mm. long, 0.60 mm. wide. First femur, 0.91 mm.; patella and tibia 1.00 mm.; metatarsus, 0.68 mm.; tarsus, 0.36 mm. Second patella and tibia, 0.73 mm.; third, 0.51 mm.; fourth, 0.77 mm.

*Diagnosis.* The carapace of the male is not circular in outline (Fig. 414) as is that of *S. insignis* (a character mentioned by O. P. Cambridge). The median apophysis has a long projecting process in *S. notabilis* (Fig. 415), lacking in *S. insignis*. The openings of the epigynum are in the center of sclerotized disks in *S. notabilis* (Fig. 412), at the posterior of a small depression in *S. insignis*.



*Records. Canal Zone:* Summit, ♀ allotype, ♂, ♀ paratypes, 7-10 July 1950; 21-29 July 1950; Aug. 1950 (A. M. Chickering); Pedro Miguel, Jan. 1958 (A. M. Chickering).

SPHYROTINUS BOGUS, new species

Figures 417-418

*Type.* Female type from Boquete, Panama, July 10-25, 1939 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Diameter of anterior median eyes one-half that of other eyes. Anterior median eyes one diameter apart, three-quarters from laterals. Posterior eyes slightly oval, their shortest radius apart. Total length 2.0 mm. Carapace 0.72 mm. long, 0.70 mm. wide. First femur, 0.80 mm.; patella and tibia, 0.84 mm.; metatarsus, 0.58 mm.; tarsus, 0.36 mm. Second patella and tibia, 0.72 mm.; third, 0.60 mm.; fourth, 0.79 mm.

*Diagnosis.* The epigynum (Fig. 418) distinguishes this species from other species of the genus.

*Record. Panama:* Boquete, ♀ paratype (A. M. Chickering); El Voleán (W. J. Gertsch).

SPHYROTINUS BOQUETE, new species

Figures 419-422

*Type.* Male holotype from Boquete, Panama, July 1939 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Carapace, sternum, legs, yellow-brown. Abdomen white to gray. Anterior median eyes smaller than others, one and one-quarter diameters apart, about one diameter from laterals. Posterior median eyes a little more than one diameter apart, one and one-half diameters from laterals. Measurements of female 1.8 mm. total length. Carapace 0.88 mm. long, 0.78 mm. wide. First femur, 1.04 mm.; patella and tibia, 1.04 mm.; metatarsus, 0.69 mm.; tarsus, 0.48 mm. Second patella and tibia, 1.00 mm.; third, 0.66 mm.; fourth, 0.85 mm.

*Diagnosis.* This species differs from others by having an epigynum with a projecting posterior lip (Figs. 420-422); and a palpus whose embolus is not visible in ventral view (Fig. 419).

*Records. San Luis Potosí:* Tamazunchale (F. Bonet; A. M. and L. I. Davis). *Veracruz:* 80 mi. SW. of Tuxpan (A. M. and

L. I. Davis); El Tajín (C. Goodnight and Bordas). *Tabasco*: Baños de Sulfre nr. Teapa (C. and M. Goodnight). *Chiapas*: Huitzla; Pichualco (C. and M. Goodnight). *Costa Rica*: San José (E. Schmidt). *Panama*: Boquete, ♀ allotype, ♀, ♂ paratypes (A. M. Chickering); El Volcán (A. M. Chickering). *Canal Zone*: Forest Reserve (A. M. Chickering).

SPHYROTINUS SCLEROTIS (Levi), new combination

*Paidisca sclerotis* Levi, 1957, Bull. Amer. Mus. Nat. Hist., vol. 112, p. 104, figs. 384-387, ♀; map 37.

*Distribution*. New Mexico to Chihuahua.

*Additional record*. *Chihuahua*: Cañón Prieta nr. Primavera (W. J. Gertsch).

SPHYROTINUS MISSIONENSIS (Levi), new combination

*Paidisca missionensis* Levi, 1957, Bull. Amer. Mus. Nat. Hist., vol. 112, p. 102, figs. 380-383, ♀; map 37.

*Distribution*. Texas to Costa Rica.

SPHYROTINUS DEPRUS, new species

Figures 427-428

*Type*. Female type from Barro Colorado Island, Canal Zone, June 23-30, 1939 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description*. Dorsum of abdomen with a fine median dusky line; a dusky ring around spinnerets. Anterior median eyes slightly larger than others, two-thirds diameters apart, one-quarter from laterals. Posterior median eyes one diameter apart, two-thirds from laterals. Total length 1.4 mm. Carapace 0.78 mm. long, 0.70 mm. wide. First femur, 0.69 mm.; patella and tibia, 0.77 mm.; metatarsus, 0.52 mm.; tarsus, 0.41 mm. Second patella and tibia, 0.66 mm.; third, 0.55 mm.; fourth, 0.71 mm.

*Diagnosis*. A large oval depression in the epigynum (Fig. 428) distinguishes this species from other *Sphyrotinus*.

*Records*. *San Luis Potosí*: Pujal, cave entrance (W. Bridges). *Costa Rica*: San José (E. Schmidt). *Canal Zone*: Barro Colorado Isl., ♀ paratypes (A. M. Chickering); Chilibre, ♀: Experimental Gardens (A. M. Chickering).

## SPHYROTINUS PALLIDUS (Emerton), new combination

*Paidisca pallida*, Levi, 1957, Bull. Amer. Mus. Nat. Hist., vol. 112, p. 99, figs. 358-366, ♀, ♂, map 35.

*Distribution.* From Massachusetts, Utah, Southern California, south to Central Mexico, Cuba, Hispaniola.

*Additional Records.* *Nayarit*: Compostela (W. J. Gertsch). *Jalisco*: W. side of Lago de Sayula (W. J. Gertsch and V. Roth). *Puebla*: Tlacotepec (V. Roth, W. J. Gertsch). *Dominican Republic*: Carr. Mella, 8 km. from Ciudad Trujillo (A. M. Nadler).

## SPHYROTINUS PROLATUS, new species

Figures 423-426

*Type.* Male holotype, from Barro Colorado Island, Canal Zone, Aug. 1-6, 1939 (A. M. Chickering), in the Museum of Comparative Zoology.

*Description.* Anterior median eyes slightly larger or smaller than others. Anterior median eyes one and one-half diameters apart in female, two-thirds diameter from laterals; their radius apart in male, one-half their radius from laterals. Posterior eyes their diameter apart. A female measured total length 1.2 mm. Carapace 0.52 mm. long, 0.41 mm. wide. First femur, 0.80 mm.; patella and tibia, 0.78 mm.; metatarsus, 0.60 mm.; tarsus, 0.36 mm. Second patella and tibia, 0.62 mm.; third, 0.39 mm.; fourth, 0.65 mm. A male measured total length 1.3 mm. Carapace 0.53 mm. long, 0.53 mm. wide. First femur, 0.85 mm.; patella and tibia, 0.92 mm.; metatarsus, 0.66 mm.; tarsus, 0.35 mm. Second patella and tibia, 0.82 mm.; third, 0.54 mm.; fourth, 0.80 mm. It is assumed that the male and females described here belong together, but this is not absolutely certain.

*Diagnosis.* The epigynum (Fig. 426) is difficult to study; it is not known for certain if the ducts are above or below the seminal receptacles; the openings are small and on the posterior margin. The length of the palpal femur equals the length of the carapace (Fig. 423); the palpal femur is thicker than the femur of the first leg. The palpus faces ectally; the dorsal side of the cymbium is covered by long silky hair (Fig. 424).

*Records.* *Canal Zone*: Barro Colorado Island, ♀ allotype, ♀, ♂ paratypes (many records); Experimental Gardens; Madden Dam; Forest Reserve (all A. M. Chickering).

SPHYROTINUS VIVUS (O. P. Cambridge)

Figures 429-430

*Theridion vivum* O. P. Cambridge, 1899, *Biologia Centrali Americana*, vol. 1, p. 293, pl. 34, fig. 8, ♀ (♀ type from Costa Rica, in the British Museum, Natural History). Roewer, 1942, *Katalog der Araneae*, vol. 1, p. 500.

*Scatoda viva*, F. P. Cambridge, 1902, *Biologia Centrali Americana*, vol. 2, p. 385.

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